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THE DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES OF BRONCHOSCOPY*

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In one sense it is almost unfortunate that Chevalier Jackson and his associates have been so eminently successful in the removal of foreign bodies from the respiratory tract by bronchoscopy. Any one who undertakes to speak on this diagnostic and therapeutic method is almost obligated to begin with the statement that the bronchoscope was originally devised for the express purpose of removing foreign bodies and there are still many physicians who regard its usefulness in the light of foreign body extraction alone; but in spite of this popular conception the largest percentage of work done in the Jackson Clinic is for bronchopulmonary diseases. Bronchoscopy is not an exceptionally heroic and dangerous procedure, but rather a simple and direct means of investigation for the treatment of bronchopulmonary diseases and for these its possibilities are limitless.

It is regrettable that there has not been a more general realization of, and therefore a more general utilization of the diagnostic and therapeutic possibilities of bronchoscopy. Actually, as has been repeatedly pointed out, bronchoscopy should be as inseparably connected with bronchopulmonary disease, and particularly with thoracic surgery, as is cystoscopy with disease of the genito-urinary tract and genito-urinary surgery. Data supplied by the one method, just as data supplied by the other, may sometimes determine the outcome of a given case.

The chief reason for failure fully to utilize the possibilities of bronschoscopy is entirely erroneous but still a rather general belief that it is a difficult and taxing and dangerous procedure. In the early days, when the only available tubes were very primitive indeed, it might have been true, as was once said of gastroscopy, that the use of the method required "the eye of a hawk and the instincts of a sword-swallower." But this is not true of modern instruments, particularly when they are in the hands of a properly trained practitioner.

Proper training, as Jackson and Jackson[1] point out, implies training in a well organized bronchoscopic clinic, where the candidate must work for many, many hours on the cadaver, the manikin board, and the dog before he progresses to the human subject. Continued use of the method is then necessary from the standpoint of improvement of diagnosis. The removal of foreign bodies from the tracheobronchial tree does not make for proficiency in the diagnosis of tracheobronchial and bronchopulmonary disease. That can be achieved only by constant observation of the manifestations of those conditions.

As a matter of convenience to all concerned, bronchoscopy is best carried out in the hospital, but only a brief stay is required, and the procedure itself can be performed in a matter of minutes in a properly prepared patient (that is, one who has not had food for five or six hours), who is properly anesthetized with local agents, who is

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placed on the table in the proper position, and in whom the investigation is conducted by a competent team.[2]

It should be emphasized, however, that bronchoscopy is not a substitute for a number of things, including a very careful history; a painstaking physical examination; routine and sometimes special laboratory examinations; examination of the nose and throat, including tests of the swallowing reflex; roentgenologic examination of the chest, supplemented by bronchography according to the indications; histologic examination of tissue removed by biopsy through the bronchoscope; and bacteriologic examination of material aspirated through the bronchoscope. Because of lack of time I shall not be able to discuss this phase of bronchoscopy in detail, I want to emphasize at this point that the mapping out of the lesions of the various bronchopulmonary diseases in which this mode of investigation is indicated is a most useful diagnostic aid, which should be employed far more frequently. The opaque medium should be instilled under direct fluoroscopic observation, after which films which can be studied at leisure should be taken.

Bronchography obviously requires a close liaison between the roentgenologist and the bronchoscopist. It has become a cliche to say that it is

> "—the everlasting teamwork
> Of every blooming soul."

which makes bronchoscopy successful,[1] but it is obvious from what I have said that nothing else can make it succeed.

The supplemental nature of bronchoscopy is particularly apparent in connection with roentgenologic examination, which is usually regarded as the final diagnostic word in diseases of the chest. It is true that in most instances the x-ray does demonstrate the presence of pathologic changes. It is equally true that many times it reveals only their presence, but that their exact nature remains obscure until bronchoscopy is carried out. It is also true that if only bronchoscopy could be employed earlier, it might sometimes prove to be even more revealing than roentgenologic examination would be at the same period of the disease. One warning, however, should be issued: In bronchoscopy, just as in many other diagnostic procedures, negative results are not necessarily conclusive, and they should not be accepted as such in the face of clinical evidence to the contrary.

It is naturally impossible, in the limited time at my disposal, to discuss all the diagnostic and therapeutic possibilities of bronchoscopy. In addition to all forms of bronchial obstruction, of which foreign bodies represent only one cause, indications for the use of this method include cough, dyspnea, hemoptysis, and purulent or mucopurulent expectoration of obscure origins; thoracic neoplasms; pulmonary abscess; asthma; tuberculosis; atelectasis; bronchiectasis; and various miscellaneous indications. Bronchoscopy is also useful, as already pointed out, for the instillation of contrast media for bronchographic purposes; for the direct application of medications; for the aspiration of secretions; and occasionally for the removal of neoplasms.

Bronchoscopy is not useful in all chest conditions, and it is definitely contraindicated under certain circumstances. It should not be used in patients with cardiac disease or aortic aneurysm. It contributes nothing, and may do harm, in such conditions as pulmonary embolism, pulmonary emphysema, bronchitis, and bronchopneumonia, though in recurrent or unresolved pneumonia, as well as in persistent empyema, it may demonstrate a causative bronchial or pulmonary lesion, such as atelectasis or bronchiectasis, which will explain the lack of response to treatment. It has a limited field of usefulness in pulmonary tuberculosis. It should be used with caution following acute inflammatory reactions of the larynx, and when it is used under such circumstances, preparations for immediate tracheotomy should always be made. When a repetition of bronchoscopy is indicated, the second instrumentation should be delayed until the reaction from the first has completely subsided.

HEMOPTYSIS

Hemorrhage from the respiratory tract is an excellent illustration of the light which bronchoscopy can cast upon symptoms whose origin is not always clearcut. In a series of 435 cases studied by Jackson and Diamond,[3] eighteen different causes, which frequently overlapped in the same case, were revealed by this method, including bronchiectasis in 138 cases, bronchiogenic carcinoma in 82, tracheobronchitis in 74, and pulmonary abscess in 51. The most interesting thing about this series is that in 140 cases, including, it must be granted, 34 cases in which bronchoscopy also revealed no positive findings, roentgenologic examination of the chest had revealed nothing helpful in diagnosis.

There is some difference of opinion as to whether in such cases one should wait for the subsidence of active hemorrhage before performing bronchoscopy. Usually a delay is wise, since the cough reflex is abolished by the local analgesic used, and the possibility then arises that the patient may drown in his own blood. If bleeding should recur when the tube is in place, the best plan is to leave it in situ and remove the blood by suction, since, as noted, the cough reflex cannot be relied upon.

THORACIC NEOPLASMS

In recent years there has been a striking increase in the incidence of carcinoma of the lung. Quite aside from the etiologic considerations which probably account for some of the increment, a large portion is undoubtedly accounted for by the increased frequency of diagnosis. Once made only at autopsy, diagnosis is now made relatively often during life, largely as the result of bronchoscopic examination. In the series of cases reported by Jackson and Diamond, pneumonectomy was feasible in only one of the 82 cases of hemoptysis due to bronchiogenic carcinoma, which is most depressing, but to be expected, for hemoptysis is a late symptom of this disease. On the other hand, 90 per cent of the tumors were located in major bronchi, which is most encouraging, for it means that if only patients with this disease can be seen early enough, radical excision of the neoplasm will be possible in the majority of cases. It has been estimated that by the employment of bronchoscopy a correct diagnosis is possible in 75 per cent of all cases, and it is known that on the average patients thus investigated live two and a half times as long as those in whom this procedure is not carried out, obviously because therapy is instituted earlier. If this method is employed with refined roentgenologic methods, based on the interpretation of moderate or minimal degrees of bronchostenosis, the outlook becomes even more hopeful.[4]

There is little hope, however, for the patient who is not investigated until hemoptysis and other late symptoms develop. In bronchiogenic carcinoma the suspicion of malignancy is the first step on the road to salvation from death. Results will not be materially improved until bronchoscopy is carried out on suspicion, which means while the patient is still presenting symptoms such as cough, dyspnea, asthmatic wheezing, and a sense of pressure in the chest. These symptoms, if they are persistent and if their origin is not clear, should always call for bronchoscopic examination. They are the manifestations of many diseases of no consequence, but they are also manifestations of bronchiogenic carcinoma while it is still in its early, curable stages.

Bronchoscopic examination permits the distinction, which roentgenologic examination does not, between malignant and benign neoplasms. Punch biopsy permits the same distinction, but it is feasible only in the occasional superficially located tumor, and it may be associated with considerable risk. Bronchoscopic examination, moreover, gives far more exact information as to the possibility of surgical excision of the growth than does either of these methods, and makes clear, as neither of the others does, whether a suitable stump will be available if pneumonectomy or lobectomy is decided upon.

From 75 to 90 per cent of tumors proved to be benign can be removed through the bronchoscope, but this is neither a rational

nor a possible method when the tumor is malignant, though in an occasional very early case pneumonectomy shows that biopsy carried out at bronchoscopy has actually removed the entire malignant growth. If the tumor is inoperable, palliative bronchoscopic procedures may add greatly to the patient's comfort. Removal of the accessible obstructing growth, for instance, and aspiration of retained secretions will permit better aeration and relieve toxicity. The application of radon seeds through the bronchoscope is also possible,[5] but the results of this method naturally depend upon the accessibility of the tumor and upon its properties of radiosensitivity or radio-resistance.

LUNG ABSCESS

A great many cases of lung abscess could be prevented if bronchoscopy were carried out before the removal from the operating room of every patient who has vomited in the course of operation. Every bronchoscopist knows that, for every bronchoscopist has had the experience, in both acute and chronic lung abscess, of removing from it vomitus, blood, and bits of tissue.

Adequate drainage is the most important single factor in the therapy of lung abscess. If it can be achieved by postural methods, so much the better. If it cannot be, bronchoscopic drainage should be given a fair trial before surgery is carried out. Even if surgery must eventually be resorted to, bronchoscopy is still useful. It demonstrates the extent of the abscess and the best method of approach to it, a piece of information which sometimes determines whether the patient is to live or to die. It is a wise plan, immediately before the abscess is opened, to aspirate all visible secretion through the bronchoscope; the more distal bronchi can be fairly well cleared if the patient coughs at intervals during the process.

After the abscess is opened, the use of the bronchoscope may limit the spread of infection and save the patient from drowning in his own secretions.

ASTHMA

Although the pathologic basis of asthma was once supposed to be spasm, it is a curious fact that spasm has never been demonstrated in any reported case studied by bronchoscopy. The thick, gelatinous, tenacious, membranous secretion which is frequently thus revealed makes clear the source of the patient's respiratory distress, and also explains why sedation, antispasmodics, and inhalants are so often without effect. Removal of the obstructing secretion by the bronchoscope is the obvious explanation of relief in some cases, but the relief usually occurs too promptly to make removal of bacteria or toxic substances any part of the explanation, though the ultimate result of their elimination is naturally good. In some instances in which such secretions are not present, but in which repeated passage of the bronchoscope is curative, there is no explanation for the patient's relief, though a psychic effect cannot always be discounted. Naturally a great deal of benefit cannot be expected in asthma which is on a proved allergic basis.

TUBERCULOSIS

Bronchoscopy has a useful field in tuberculosis, and in the opinion of some observers that field is constantly being extended.[6] The long-accepted idea that a cavity in the upper lung is tuberculous and a cavity in the base is not, is not invariably true; bronchoscopy often reveals tubercle bacilli in many supposed pyogenic abscesses, and diametrically alters the plan of treatment. The diagnosis of pulmonary tuberculosis can also be made by this method in cases in which neither roentgenologic examination nor repeated examination of the sputum has been helpful.

Bronchoscopy should be carried out before any surgery of pulmonary tuberculosis is undertaken, to determine the full extent of the disease. It is well to carry it out after thoracoplasty or pneumothorax whenever the sputum continues positive, as the collapse may be incomplete, and, if left untreated, may set up the nucleus of a later abscess. Surgery is useless if extensive tracheobronchial disease exists.

Useful as is the method, however, it should be used only on indications. It should be employed with discretion, if at all, in patients who have had recent hemoptysis and patients with marked debility. It had best be omitted in cases of healed laryngeal tuberculosis, in which it may cause a reaction, and special care is necessary in cases in which there is a high concentration of tubercle bacilli in the sputum.

Bronchoscopy is not of great therapeutic value in tuberculosis. Cauterization of a localized granuloma in the lower trachea sometimes prevents asphyxia, but such lesions are unusual. The more common form of granuloma, which fills the main bronchus from the introitus down to the lower lobe, is best left alone, both because only a portion is accessible and because local therapy may interfere with spontaneous healing, which frequently occurs. The aspiration of retained secretions as the result of bronchiectasis beyond areas of partial obstruction is of only temporary value, since such secretions reaccumulate within a few hours.

BRONCHIAL OBSTRUCTION

Bronchoscopy has an almost limitless field of usefulness in any form of bronchial obstruction, whatever the cause. As Jackson and Jackson have pointed out, the diagnosis of asthma should never be made in a child until the presence of a foreign body has been excluded by this method. In the early stages of tracheobronchial diphtheria pulpy masses may obstruct the bronchi, and later, membranous casts may actually cause asphyxia, for which tracheotomy is not helpful.

A patient who develops atelectasis after operation may recover without treatment, but he may also die, even in an oxygen tent, if the cause of his obstruction is not promptly relieved. Furthermore, patients who eventually recover without treatment are likely to develop chronic pulmonary suppuration. Incidentally, there are few things more dramatic in medicine than the prompt recovery after bronchoscopy of a patient who has seemed almost moribund from massive atelectasis.

MISCELLANEOUS CONDITIONS

In bronchiectasis, as Jackson and Jackson have pointed out, bronchoscopy has demonstrated the existence of a "septic tank," and aspiration by way of the bronchoscope has proved itself the most satisfactory method of relieving it. Surgery is frequently required in extensive and long-standing bronchiectasis, but when for any reason it is contraindicated aspiration adds materially to the patient's comfort. It is also a useful adjunct measure in preparation for operation. Aspiration of secretion in a weakened pneumonia subject, whose cough reflex shares in his general weakness, may prevent later bronchiectasis.

Other bronchopulmonary states in which bronchoscopy is useful,[7] chiefly as a method of differential diagnosis, include bacterial and mycotic diseases such as leptothrix and ectinomycosis; syphilis; angioneurotic edema; spirochetosis; phrenic nerve paralysis; any disease in which there is a deviation from the usual course.

Bronchoscopy is sometimes useful in dilating bronchial strictures of various origins, but thick strictures, such as occur in tuberculosis, with associated destruction of the bronchial cartilages, are best left untreated.

SUMMARY

1. The various indications and contraindications for bronchoscopy are outlined.

2. This method has a wide field of diagnostic usefulness, and a more limited field of therapeutic usefulness.

3. A more general employment of bronchoscopy would produce better results in various bronchopulmonary diseases, and it is unfortunate that the opinion, which is entirely contrary to fact, still prevails that its chief field of usefulness is in the removal of foreign bodies.

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DISCUSSION

Dr. Louis A. Monte (New Orleans): Dr. Taquino has, in a necessarily brief presentation, given us a comprehensive coverage of the large and growing field of bronchoscopy. As the x-ray today is indispensable in the study of bronchopulmonary diseases so shall the bronchoscope come more and more into popular use in this field. Bronchoscopic examination in skillful hands is non-traumatic—the idea of mucosal injury with secondary infection or bronchiogenic spread by interfering with nature's defense walls has been proved nonimportant. Cystoscopic and proctoscopic examinations are familiar and upon any suspicion are without hesitation used on our patients. Bronchoscopic differs only in an anatomic fashion since all the procedures are truly a part of the physical examination, namely, inspection. When the therapeutic value of the bronchoscope is added to that of diagnosis we have at our command a really potent weapon toward combating the many disturbed states occurring in the respiratory tree.

While admitting that a thorough history and physical are the basic foundation of the patient's examination, it should also be remembered that to omit any procedure that might prove or disprove our suspicions is a serious omission. Besides the absolute indication of bronchoscopy in foreign bodies its general use or indication is in those obscure pulmonary conditions which by their general nature often defy recognition by the usual methods of study.

The study of 436 hemorrhage cases by Jackson and Diamond as quoted by Dr. Tajuino is interesting in that it very forcefully stresses the importance of thorough bronchoscopic study in patients with hemoptysis otherwise unexplained. Whereas the x-ray proved helpful in diagnosis in 68 per cent of the cases, the use of the bronchoscope raised the percentage diagnosed to 91 per cent, an increase of 23 per cent.

The value of bronchoscopy in tuberculosis is as the author states, mainly that of proper evaluation of cases relative to contemplated collapse measures. At this point it is well to give due credit to the bronchoscopist. Pathologically, tuberculous tracheobronchitis was recognized a century ago. Yet it has been only in the last decade that its clinical significance has been recognized and become a definite factor in the proper management of pulmonary tuberculosis. To the bronchoscopist most of this progress must be attributed. Also of value in a large tuberculosis service, such as the Dibert where all patients suspected of having tuberculosis are sent to the observation ward, the bronchoscope will reveal other non-tuberculous diseases such as carcinoma, bronchiectasis, fungus diseases, foreign bodies, etc. Though relatively few in number, these patients are spared a useless stay in a tuberculosis service.

It is difficult to pass on without saying a few words about cancer of the lung. While as Dr. Taquino stated there is probably a real increase in the incidence of neoplasms, the chief factor in this increase is most likely the improvement in our diagnostic acumen. It is interesting to note that in our day a patient need not die and have an autopsy before lung tumors are diagnosed. The increasing recognition of this condition in life seems to have paralleled the more general use of the bronchoscope. As with most serious chronic diseases, the earlier lung tumors are suspected and proved, the more valuable and beneficial will be the help offered by the surgeon. Toward this goal the bronchoscopist must by necessity lead the way. Concerning lung punch biopsy I recall a recent patient in whom the diagnosis from the standpoint of the history, physical examination and x-ray study was between one of two conditions, namely, cancer and tuberculosis. A bronchoscopic examination failed to visualize any direct evidence of pathology though by the aid of lung mapping there was shown to be some failure to fill the upper left lobe bronchus. The serial x-ray films demonstrated a fairly rapid spreading homogeneous opacity which extended to the very periphery. This indicated diffuse infiltrative pathology through lung tissue, so a punch biopsy was thought safe and was performed without harm to the patient. A mixture of blood and necrotic-like tissue was aspirated and the pathological report was that of adenocarcinoma.

The use of bronchoscopic examination in unresolved pneumonia raises the question as to the existence of any such condition. While it is true that the speed of resolution is often delayed, many authorities believe any undue chronicity is based on some other underlying cause, this cause being in most cases a varying degree of bronchial obstruction such as that produced by secretions, gland adenopathy, carcinoma or non-opaque foreign body, and it is this obstruction that accounts for distal bronchopulmonary changes. If this viewpoint of unresolved pneumonia be correct then bronchoscopy is an indicated procedure.

Since all patients presenting signs or symptoms of bronchial obstruction require bronchoscopic examination it might be well to direct our attention

to the so-called asthmatic bronchitic individual. This is the patient having no previous allergic history who upon or soon after developing an acute tracheobronchitis presents the usual asthmatic wheezing. The response to usual medications is not always gratifying and for awhile we are confused as to the true etiology. These cases should more accurately be diagnosed as active tracheobronchial infection in which will be found a swollen mucosa and a lumen containing much thick tenacious secretion. Bronchoscopic drainage, shrinkage and lavage will in most cases afford much benefit.

Finally, I would like to repeat Arbuckle's words by saying that bronchoscopic examination is only a means of improving that part of the physical examination known as inspection, either directly or indirectly, and by so increasing the value of inspection we decrease our guessing.

Dr. F. E. LeJeune (New Orleans): I enjoyed Dr. Taquino's paper very much. He has aptly brought out how bronchoscopy, in its inception, was used entirely for removal of foreign bodies. Many lives have been saved by that procedure and many in the future will be saved by skillful removal of foreign bodies. However, the scope of the usefulness of bronchoscopy has increased to include the diagnosis and therapeusis of many thoracic conditions.

Years ago when I first started practicing otolaryngology, I performed bronchoscopy only for removal of foreign bodies. Now, I do only a small percentage for this purpose. I believe that in the future bronchoscopy will be used more and more as a diagnostic and therapeutic measure. Since I am closely associated with a surgeon who does a great deal of thoracic surgery, I have seen many cases requiring bronchoscopy for treatment. My percentage of accurate diagnoses is much lower than the 75 per cent which Dr. Taquino mentioned he was able to make in neoplasms of the chest. I have not been able to make an accurate diagnosis in that high a percentage of cases because frequently a neoplasm is in the upper lobe of the bronchus. Visualization is impossible unless the lesion protrudes to the mouth of the upper lobe of the bronchus because it is impossible to see around the corner through the bronchoscope. If we cannot actually visualize the growth itself, many times we must make the diagnosis by study of the walls of the bronchi. An examination of the contour, flattening of the wall, appearances of infiltration and change in color, are significant. Frequently we have made the diagnosis, in spite of the fact that we could not prove it, by removing a piece of tissue for microscopical examination.

The preoperative bronchoscopic examination in cases of large abscesses and neoplasm of the lung is important, and postoperative bronchoscopies and aspirations are even more important. I would like to cite one case. A lung was removed because of a tumor on one side in a patient in whom multiple lung abscesses had developed as a result of a neoplasm in the middle lobe of one lung. Following closure of the wound, search was made for that neoplasm. It was not found. Meanwhile, I was doing a bronchoscopic aspiration and found the tumor lodged in the proximal part of the right main stem of the bronchus. The tumor was free. Certainly, if the patient had been sent back with that tumor, nearly as large as a marble, it would have been dislodged from its place in the right bronchus and trachea, causing asphyxiation and death. The removal of the tumor piece-meal was accomplished through the bronchoscope, as it was too large to remove in toto. Aspiration, particularly in cases of lung abscess, where purulent material is spilled by the handling of the lung being removed, is important. Purulent material is squeezed out and enters the other lung and unless aspiration is performed the postoperative results may be poor.

Dr. Taquino has aptly brought out that bronchoscopy of the future promises a great deal to the thoracic surgeon and internist.

Dr. L. W. Alexander (New Orleans): I thoroughly enjoyed Dr. Taquino's paper. There is only one point to bring out which was not touched upon; that is expiration of trachea after tonsillectomy where there is large amount of bleeding. I think that is very important and I think whenever a patient has had an excessive amount of bleeding from the throat he should have laryngeal examination after operation to be sure there is no blood left in the tracheal bronchial tree.

Dr. George Taquino (in closing): Dr. Alexander brought out a very interesting fact when he said that following tonsillectomy careful examination of the tracheal bronchial tree should be made. I would say that in almost every case of tonsillectomy you will find blood in the trachea if you look for it.

Bronchoscopy is only part of the scheme of the practice of medicine. Unless we can pool our knowledge, that is the knowledge of the thoracic surgeon, roentgenologist, and internist, and pathologist, bronchoscopy alone would probably be a failure. With the combination of all and pooling of knowledge we can arrive at very valuable conclusions and in many instances be of great assistance in saving many a patient's life.

CARCINOMA OF THE LARYNX*

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That great surgeon, George Crile, has aptly said that no surgical procedure offers so certain and permanent a cure as that for intrinsic cancer of the larynx, provided an early diagnosis has been made. All laryngologists concur in this statement; however, the way to obtain an early diagnosis remains the most baffling problem. Fully 40 per cent of the patients with carcinoma of the larynx who consult the laryngologist for the first time have such advanced lesions that little or no surgical procedure can be offered them. It is deplorable that these patients are doomed because of their delay in consulting a laryngologist. This delay is not deliberate but rather the result of ignorance of the seriousness of the existing conditions within the larynx. Unfortunately, intrinsic cancer of the larynx does not produce any pain or other discomfort in its early stages. For this reason, the patient is reluctant to consult a laryngologist merely because of the existing hoarseness, since in the past many similar conditions have cleared up spontaneously. We have all experienced hoarseness following an ordinary common cold and because of the spontaneous recovery we have come to consider it a trivial symptom. Unfortunately, this is not always true and we are forced to the definite conclusion that any patient with hoarseness lasting over a period of two weeks deserves and should have a mirror examination of the larynx. Frequently, this simple procedure will permit the early diagnosis of tuberculosis, syphilis, cancer and other pathologic conditions existing within the larynx, many of which are amenable to treatment in the early stages.

It would seem that the incidence of cancer is increasing or else our modern methods of diagnosis permit the more frequent recognition of this disease. Cancer now ranks as the second most frequent cause of death in this country, being surpassed only by heart disease. About 4 per cent of all malignancies of the human body occur in the larynx and about 94 per cent of these lesions are found in men. The reason for the great preponderance of carcinomas of the larynx in men is still unknown.

Eighty-five per cent of laryngeal lesions involve one vocal cord or ventricular band and are spoken of as intrinsic carcinomas. The remaining 15 per cent, which occur on the rim or posterior portion of the larynx, are known as extrinsic carcinomas. The importance of this classification is more fully appreciated when it is realized that the intrinsic type of cancer of the larynx responds favorably to surgical intervention, whereas in the extrinsic type the prognosis is poor. In contrast to the predominance of intrinsic laryngeal carcinomas in males, it is interesting to note that extrinsic carcinomas occur with more frequency in women.

In laryngeal cancer, as is now the conception in all malignancies, there is no definite age incidence. The larger percentage of cases occur between the fourth and seventh decades of life with the highest incidence in the sixth decade, although the growth is occasionally encountered in younger persons. A laryngofissure was recently done on a twenty-one year old boy and a laryngectomy on a twenty-eight year old man. Cases of younger patients have been reported.

The etiologic factor in cancer of the larynx, as in all cancers, is not definitely known. Irritants predispose a delicate mucosa to malignant changes. Smoking has been considered to act as an irritant to the laryngeal mucosa, yet we have seen several patients with carcinoma of the larynx who have never used tobacco in any form.

In its incipiency intrinsic cancer of the larynx is always unilateral, of slow growth and late extension because of the peculiar and restricted lymphatic arrangement within the larynx. The preferential site is that

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region which is most active, the vocal cord; Jackson estimates 85 per cent of carcinomas are found on this organ. Because of the limited extension of the lymphatics within the region of the cords, the prognosis is good in all early intrinsic lesions. Intrinsic carcinoma of the larynx offers a larger percentage of cures than carcinomas occurring in any other organ of the body, if an early diagnosis has been made.

Similarly, no other organ in the body gives as early a warning of the presence of malignancy as does intrinsic carcinoma of the larynx. Practically with its inception, intrinsic carcinoma of the vocal cord produces an alteration of voice recognized as hoarseness. This manifestation will persist and gradually become worse as the lesion slowly increases in size. There is absolutely no pain or discomfort in the early stages of the disease. Laryngeal examination is imperative in every case of persistent hoarseness for this is the only manner by which an early diagnosis can be made. The importance of an early examination cannot be stressed too vigorously as the very life of the patient depends entirely upon early recognition of the disease. The general practitioner is in a position to play an important role in the recognition and control of intrinsic cancer of the larynx. He must, however, be on the alert for cases of persistent hoarseness, referring these to a competent specialist who will conduct a thorough laryngeal investigation. The cooperation of the general practitioner is necessary in disseminating to the patient the fact that persistent hoarseness is the danger signal in carcinoma of the larynx. Until the layman becomes fully cognizant of the significance of persistent hoarseness, we cannot expect to see more cases of malignancy of the larynx in the early stages.

It is unfortunate that so many cases of carcinoma of the larynx seen for the first time by the laryngologist are so far advanced that little or nothing can be offered them. These advanced cases would never be seen if a routine examination were made early in all cases of persistent hoarseness. If an early diagnosis were made in every case of carcinoma of the larynx and proper measures instituted, there would be comparatively few cases in which complete excision of the larynx would be required. In most cases a tentative diagnosis can be made following mirror laryngoscopy. Because it is at times difficult to distinguish between the lesions of carcinoma, syphilis and tuberculosis, surgical procedures on the larynx should never be attempted until a biopsy, or repeated biopsies, when necessary, have been performed.

By far the most frequent lesion encountered in the larynx is a squamous cell carcinoma, which in the early stages is always unilateral. Eighty-five per cent of these occur on the vocal cord and usually grow slowly because of the restricted lymphatic supply. The lesion generally extends in the longitudinal plane of the cord. As soon as it becomes manifest on the cord, a warning signal develops in the form of hoarseness. This hoarseness is persistent and its significance should be recognized early. Ample time for study, diagnostic confirmation and surgical intervention is thus provided by nature. Delay in examination not only permits progression of a serious lesion unmolested, but also permits extension of the lesion to a stage whereby little can be done for the patient.

Whereas intrinsic cordal carcinomas give early warning of their presence, lesions occurring on the aryepiglottic folds, or the outer rim of the larynx give no indication of their existence until they are fairly well advanced. This latter type of lesion represents the extrinsic carcinoma which presents a much less favorable prognosis than the intrinsic type. As a rule, the first symptom presented by extrinsic lesions is local discomfort and pain or deglutition. These do not manifest themselves until rather late; consequently, the lesions are always fairly well advanced when first seen.

Once the diagnosis has been established, the proper surgical procedure must be carried out. The amount of surgical intervention necessary to effect a cure in carcinoma

of the larynx is directly proportionate to the extent of the lesion. For this reason, an arbitrary division of the cases into four groups will facilitate the discussion of treatment.

The first group, representing the earliest and most definitely limited of all the lesions encountered, comprises carcinomas confined to a small portion of the surface of one vocal cord. The tumor may be only the size of a grain of rice, a match head or a pea, but it is essential that normal tissue exist on all sides. Such a lesion is generally seen somewhere near the junction of the anterior and middle thirds of the vocal cord. Thus it can readily be seen that this group includes only a very special type of growth which unfortunately is not seen often enough because of delay in otolaryngological consultation. Intralaryngeal extirpation with wide margins of normal tissue offers much to these patients. The percentage of cures in this group is equally as high as in group two where the surgical procedure is more formidable. This method is simple, accurate and productive of vocal and end results superior to any other surgical procedure for carcinoma of the larynx.

The second group includes those cases of early cancer of the vocal cord which are either too far advanced or too unsatisfactorily located for operation by intralaryngeal dissection and yet offer reasonable hope of cure without the necessity of total extirpation of the larynx. The ideal case is one in which the lesion involves the middle portion of the vocal cord with both ends uninvolved. The operation of laryngofissure, which through an external approach is directed toward splitting the thyroid cartilage in the median line, thereby exposing its interior, is a brilliant technical conception and is relatively simple to perform. The results are excellent and the voice following operation is usually very good. More and more cases are being seen which fall into this group and the benefits obtained from such an operation merit its continued use.

Into the third group are placed those cases in which the lesion, although considered too extensive for laryngofissure, is still confined within the cartilaginous structure of the larynx. Total laryngectomy is indicated in this group, provided there is no evidence of cervical metastasis. In the presence of an extensive cancer there can be no compromise; partial loss of voice is, of course, preferable to the loss of life. Laryngectomy provides excellent results in properly selected cases, that is, those in which the lesion is still confined within the larynx proper. The performance of laryngectomy is long and tedious and is best done, in our opinion, under heavy sedation and a local anesthetic.

For the past thirteen years I have used the mid-line incision extending from above the hyoid bone to the suprasternal notch. This type of incision facilitates closure and expedites healing so that the patients are out of bed on the fifth day, at which time the feeding tube can also be removed. Details of the operative technic will not be discussed here, as this would be of interest only to laryngologists. It is my policy, before doing a laryngectomy, to attempt a short period of training during which the patient is taught to swallow and belch air from the esophagus. This greatly facilitates and shortens that trying postoperative period when the patient is again learning to talk. The rapidity with which these patients develop a voice and the excellent quality of their voices is astounding. This is far preferable to the use of an artificial larynx.

My observation is that laryngectomized patients accept the problem of rehabilitation in a calm and determined manner, and in spite of their handicap they are a happy lot, thankful to be alive and anxious to do their bit in this world today. To date 81 laryngectomies have been done with no operative mortality. There have been some recurrences, principally cervical metastasis, but 85 per cent of patients remain well without recurrence.

Those unfortunate persons who delay medical consultation until the lesion is too

extensive for surgical intervention constitute the last group. They have been classified as the extrinsic type of carcinoma of the larynx which is seen all too frequently for the first time in the office, consequently little or nothing can be done for them. Radiation may prolong life, but we can hardly hope for cure. This should not be considered a condemnation of radiation therapy for carcinoma of the larynx in general. Although we are convinced that surgical treatment offers the greatest number of permanent cures, in properly selected cases there has been sufficient evidence of success in similar circumstances following radiotherapy to warrant serious consideration of this means of treatment.

Every case of persistent hoarseness should be considered a potential case of carcinoma of the larynx until proved otherwise. If this policy were followed, an earlier diagnosis would be made and if proper measures were immediately instistituted, a larger number of patients with carcinoma of the larynx would be cured. This policy can only be carried out by the united cooperation of the entire medical profession. The significance and seriousness of persistent hoarseness should be broadcast repeatedly in an effort to make the public realize that persistent hoarseness is the danger signal of carcinoma of the larynx.

DISCUSSION

Dr. L. W. Alexander (New Orleans): This fine paper by Dr. LeJeune is difficult to discuss due to the fact that he has covered the subject so thoroughly for the general practitioner, and this presentation is especially directed to his attention. It is most unfortunate that Dr. LeJeune was not able to show the excellent colored movies that he has made on many of his cases. I hope that at a later date you will have the opportunity to see the movies.

I would like to stress several important points as brought out by Dr. LeJeune: (1) Cancer is second only to heart disease as the cause of death in this country; (2) five per cent of all malignancies occur in the larynx; (3) the larger percentage of cases occur between the fourth and seventh decades; (4) the early sign is hoarseness with no pain; (5) no ear, nose, and throat examination is complete without an examination of the larynx.

In a recent report by Dr. Max Cutter 413 cases were reported in which only 88 cases were presented in its early stages. He is using in the early cases a new type of x-ray treatment in which the rays are concentrated upon a small area. The patients were treated twice a day from 11 to 18 days. In fifty moderately early cases the lesion disappeared in 40 cases or 80 per cent. Twenty-three out of 28 patients treated three years are at present free of the disease and apparently cured.

Today man in his hurry is halted by one symptom; if discovered early it may mean saving his life. Hoarseness is a blessing in disguise to these patients. The cancer cells are alive and growing. It is an abnormal tissue producing abnormal symptoms of voice. The doctor must discover the lesion early. A man freezing to death will die if not aroused; therefore the public must be aroused to cancer of the larynx.

I hope that this paper by Dr. LeJeune will stimulate much discussion.

Dr. M. Manuel Garcia (New Orleans): Being a radiologist, I can say without bias that I consider operation for laryngeal cancer one of the real accomplishments of medicine. At the same time it must be acknowledged that this type of surgery suffers from many limitations and that it provides only a partial solution to the problem of laryngeal cancer.

As Dr. LeJeune has pointed out, many of the patients unfortunately come to us with the disease well advanced, when we are no longer able to offer them the excellent possibilities for cure that he has so ably presented. This is true principally in extrinsic carcinoma, but it is also true in a large measure in carcinoma of the cord itself, and becomes more significant when we recall that the so-called intrinsic type does not always have the clear predominance indicated in the distribution of cases shown by Dr. LeJeune. Our experience at Charity Hospital has been somewhat different; approximately one-half of the cases we see are classified in the intrinsic group while the other half are extrinsic. It follows that we are compelled to rely on radiation for the control of a great many lesions.

Furthermore, I would venture to say that the results of radiation are no longer to question, although of course, they cannot compare with the surgical results, since the two methods of treatment deal with inherently different forms of the disease, radiation being employed when operation is no longer feasible, or when the patient refuses operation. Dating back to 1928 when the pioneer work of Coutard, of the Curie Institute in Paris first furnished complete data on a large number of cases treated by x-ray therapy, numerous studies have become available clearly stating what can be accomplished by this form of treatment. Radiation yields from 13 to 28 per cent five year control according to the reports published by Coutard, Martin of the Memorial Hospital, Chamberlain of Philadelphia, Lenz of New York, and several others.

At Charity Hospital there has been no opportunity as yet to collect a sufficient number of cases to state our results, but we know that patients are alive and well today who at the time of admission had perforation of the thyroid cartilage, or limited metastases in the neck, or some other type of extensive local invasion. Moreover, we know that the results of radiation are bound to improve as our experience matures and our technical facilities become perfected. The dosage requirements are becoming better defined, the distribution of the radiation in space and in time for the attainment of optimum results are under constant investigation, and we know that accuracy in treatment demands that the radiologist, like the laryngologist, should be thoroughly acquainted by painstaking frequent examinations with the precise extent of the lesion and with the changes it manifests during the course of treatment.

Dr. Val H. Fuchs (New Orleans): Listening to Dr. LeJeune's paper we all realize we are listening to the voice of a master in laryngeal surgery. I have nothing to add except to mention one thing he stressed, that is, do not wait so long to send your patients in when they complain of hoarseness. It is appalling how many cases we have seen when patients go along for six or eight months with hoarseness before the family doctor sends them for examination. Send patients early and we can do much more with them.

Dr. W. A. Wagner (New Orleans): I think Dr. LeJeune's presentation is a masterpiece. It not only represents a report of his experience but a complete resume of carcinoma of the larynx. I want to congratulate him.

Dr. John T. Crebbin (New Orleans): I wish to emphasize the fact that patients who have had their larynx removed may not be deprived the pleasure of being able to talk. Formerly this was done with the aid of a mechanical larynx, but in recent years patients are encouraged to talk by breath control, similar to belching.

Although, this method is difficult to acquire, it is surprising how well many patients become experts and are able to converse over the telephone and take part in public gatherings.

One cannot stress the importance of persistent hoarseness, for this is a danger signal, which must not be overlooked. Hoarseness of several weeks' duration may mean a benign or malignant growth. In either case, a laryngologist should be consulted without delay.

Dr. F. E. LeJeune (in closing): Dr. Garcia's discussion interested men very much as I believe that the future treatment of cancer of the larynx is going to be dependent largely upon the development of radiation. Some of the results I have seen have been most illuminating; others, of course, most heartbreaking.

A number of years ago I recall seeing an old Frenchman from Bayou LaFourche, born and reared not far from where I grew up. He came to me with a lesion involving one entire side of the larynx. I had to speak French to him and I told him that I was sorry but the only thing I had to offer was extirpation of the larynx. He asked me if I would have to take out the entire larynx and if he would have to learn how to talk again, to which I replied in the affirmative. He said that the good Lord had put in his larynx to use and he was going to use it as long as he was on this earth. Since he refused to have an operation, I suggested radiation, to which he finally agreed. This patient represents one of the very few cases in which the lesion will completely clear up following radiation and today, nearly six or seven years after treatment, he remains perfectly well. I would defy anyone to say that this patient ever had a lesion in his larynx. He is as well as any patient I have every seen. Other similar cases are being reported throughout the country.

Because I have had some unpleasant experiences following radiation, I have always been somewhat skeptical about it and prefer surgery. However, Dr. Garcia and his associates may be able to convert me in the future. Certainly, radiation offers much to the patient with cancer of the larynx, but at the present time I feel that in early cases of carcinoma of the larynx surgical intervention, which guarantees cures in at least 75 per cent of cases, is preferable to any other method which promises less certain results. In all my surgical cases I advocate postoperative radiation. Many patients are given preoperative radiation for fixation of cells in mitosis and postoperatively, additional radiation is given.

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THE ROLE OF ROENTGEN PELVIMETRY IN THE MANAGEMENT OF PELVIC CONTRADICTION*

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There is considerable difference of opinion among obstetricians as to the value of roentgenologic pelvimetry, hence this brief presentation of the subject. Some feel that such a study discloses nothing which cannot be ascertained by a careful clinical study of a given patient, while others consider that an x-ray examination should be made of every primipara and of every mul-

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tipara giving a history of previous difficult labor. It appears that a "middle of the road" attitude is the more logical one.

It is generally agreed that clinical pelvimetry does not always give us the final answer as to the presence or absence of disproportion. Let us remember that in each obstetrical patient one of the most important questions is "Can this baby be delivered safely through this pelvis?" This means that the baby must enter the inlet, pass through the pelvic cavity, and emerge through the outlet, all without injury due to bony dystocia. It is obvious that a small infant can traverse a small or a slightly deformes pelvis, whereas as oversized child might get into difficulty in a normal pelvis. Hence we need to know the relationship between the two, as well as the details of the pelvic measurements.

Again, we must remember that in clinical pelvimetry we do not measure the various pelvic diameters directly, but take certain external and internal measurements, and from them make estimates as to the diameters. For example, we conclude that if the external conjugate is 20 cm., the true conjugate is normal, whereas if the former is 17.5 or 18 cm., we assume that the latter is shortened. However, if the sacrum is abnormally thick, the true conjugate may be too short with a 20 cm. external conjugate; on the other hand, with a thin sacrum, the internal diameter may be normal even though the external one be shortened. Again, in a very stout patient, accurate measurements are not possible.

When we consider the pelvic cavity we find our difficulties increased, as there is no way of measuring its diameters clinically, nor are there external measurements from which we can make deductions as to the internal ones. True, the diagonal conjugate, when it can be measured, gives us the true conjugate when we subtract 1½ to 2 cm. This diagonal conjugate cannot always be measured, however; the examiner must be equipped with fairly long fingers, and the patient must be cooperative, with relaxed soft parts. Again, the very important diameter between the posterior inferior ischial spines cannot be measured; we can merely estimate whether or not it is ample, and it is the transverse diameter of the plane of least pelvic dimensions.

The pelvic outlet is easily accessible, and its diameters, antero-posterior and transverse, can be directly measured. The tranverse, by the way, is 8 or 9 cm. on the living patient. The figure of 10.5 to 11 cm. applies to the dried bony pelvis. The subpubic arch can be palpated and studied, the configuration and mobility of the coccyx can be noted, and the capacity of the anterior and posterior triangles can be estimated.

What then can we do in the way of clinical evaluation of the pelvis and of fetopelvic relationship? We can take the usual external measurements carefully and accurately. We can, by a detailed digital study of the pelvic cavity, obtain a fairly satisfactory idea of the concavity of its walls, of the shape and curvature of the sacrum, and of the distance between the spines and of the prominence of these spines (whether normal or abnormal). We can attempt to measure the diagonal conjugate and thus to evaluate the true conjugate. We can study the outlet, and decide whether it is normal or contracted. Then we should try to estimate the size of the fetus, remembering that the fundus at term normally measures 33 to 35 cm. from the symphysis. In case we are dealing with a vertex presentation in a primipara, we should find the head fairly well engaged in the pelvis in the last eight or ten days of pregnancy; if it is not engaged by the time labor starts, the possibility of disproportion must be considered. In brief, if the pelvis, externally and internally, appears normal; if the fetal head in a primipara is engaged, as above noted; if, in the case of a multipara, there is a history of normal delivery of one or more babies weighing seven pounds or over; then we can feel reasonably certain that vaginal delivery can occur without undue difficulty and with little risk to mother and child.

But suppose we find the pelvic measurements smaller than normal; for example,

interspinous 22 cm., intercristal 24 or 25 cm., external conjugate 17.5 or 18 cm. Or suppose the pelvis cavity appears smaller than normal on internal examination, with ischial spines unduly prominent and somewhat closer together than is usual, or suppose the outlet is contracted, with a small transverse diameter and with a subpubic angle rather than the normal arch.

In the first instance, a trial of labor may be resorted to, in an attempt to ascertain if engagement of the head will occur in a reasonable time. This trial of labor is of value only in case of inlet contraction, either in a generally contracted or a flat pelvis. In the second type of case, with a normal inlet but with a narrow plane of least pelvic dimensions, we cannot resort to the trial of labor. The head will engage, but the problem is whether it will pass the spines. This *might* be determined by vaginal examination after the head is well down, the examiner trying to estimate the size of the head as compared to the capacity of this plane. If his estimate is correct, and the head passes, well and good. However, if he is wrong, delivery will be difficult, with serious danger or death the result for the child. And let us not forget that with the head well down and with the patient in labor for several hours, cesarean section would be difficult and rather dangerous. In this type of case, the x-ray is particularly valuable. In the third category, outlet contraction, the decision must be made before, or as soon as, labor begins, clinically if possible. If not, the x-ray will again be of great value. We cannot permit the head to reach the pelvic floor and then find that it will not pass safely.

It would appear, then, that we do not need roentgen pelvimetry in the multipara with a history of normal vaginal delivery of normally sized children, or in the primipara with a clinically adequate pelvis, with ischial spines that are not prominent and are well spaced and with the head engaged before labor starts. On the other hand, we need further information in: (a) a multipara with a history of previous dystocia; (b) a multipara with previous delivery of a small child who now presents herself with a much larger child, and (c) in a primipara with an abnormal pelvis or with an oversized child. At times the conditions are such that clinical judgment will suffice in aiding us to decide for or against cesarean section, in other cases clinical judgment, in my opinion, is inadequate.

My own practice is to proceed along these lines. In the clinically normal patients I do not resort to x-ray unless it is requested by the patients. In breech presentation, I wish roentgen study of the size and configuration of the pelvis, of the size of the fetal head (which can be determined by proper technic), and of the position of the feet and legs of the fetus. In the multipara with unsatisfactory history, or in the primipara with a pelvis suspected of being abnormal, or an oversized child, I also desire a careful and detailed x-ray study. I do not feel that we should base our decisions entirely on the roentgenologist's report, but it should be considered a very important factor in our study of the case.

The particular technic to be employed is the concern chiefly of the roentgenologist. The Ball technic seems to be the most popular. In this method the volume capacity of the pelvis at the various planes is determined, and also the volume of the fetal head. When combined with the Johnson method of calculating the various diameters, much valuable information is obtained. The Thom's method is excellent, but has not been used in this city. Of course, the roentgenologist must be most accurate and painstaking in this work. It is generally agreed that a discrepancy of not over 200 c. c. between the volume of the head and the volume capacity of the pelvis at the various planes can be overcome by the molding of the head; personally, I do not like to exceed 180 to 190 c. c. I have in the past few days delivered vaginally one patient with a difference of 175 c. c. and one with 180 c. c. I have found that the greatest assistance from the x-ray has been in the study of the plane of least pelvic dimensions. I feel that the importance of

this plane has not been stressed sufficiently in our textbooks and in our teaching. The following cases are presented as exemplifying the value of roentgen studies in determining the method of delivery to be employed:

CASE NO. 1

Pelvic Measurements:

Inlet:

Antero-posterior	10.7 cm.
Transverse	13.8 cm.
Left-oblique	12.0 cm.
Right-oblique	12.4 cm.

Outlet:

Antero-posterior (to sacrum)	10.9 cm.
Antero-posterior (to coccyx)	9.7 cm.
Transverse	10.6 cm.
Posterior-sagittal	6.0 cm.

Plane of Least Pelvic Diameters:

Antero-posterior	10.9 cm.
Transverse	10.3 cm.

(Volumetric capacity 570 c. c.)

Fetal Skull:

Fronto-occipital	12.2 cm.
Circumference	35.1 cm.
Volume	740 c. c.

Note:—The volume of the head is 170 c. c. greater than the V.C. of the plane of least pelvic diameters. This was compensated for by moulding and normal delivery occurred. Another patient with a discrepancy of 180 c. c. was delivered normally.

CASE NO. 2

Inlet:

Antero-posterior	12.2 cm.
Transverse	13.3 cm.
Right oblique	13.0 cm.
Left oblique	13.1 cm.

Outlet:

Antero-posterior (to sacrum)	11.4 cm.
Antero-posterior (to coccyx)	10.0 cm.
Transverse	10.3 cm.
Posterior sagittal	7.0 cm.

Plane of Least Pelvic Diameters:

Antero-posterior	11.4 cm.
Transverse	9.5 cm.

(Volumetric capacity 450 c. c.)

Fetal Skull:

Fronto-occipital	12.0 cm.
Circumference	34.9 cm.
Volume	720 c. c.

Note:—The volume of the head is 270 c. c. greater than the V.C. of the plane of least pelvic diameters. This patient was sectioned.

CASE NO. 3

Inlet:

Antero-posterior	11.4 cm.
Transverse	13.9 cm.
Right oblique	12.4 cm.
Left oblique	12.5 cm.

Outlet:

Antero-posterior (to sacrum)	12.7 cm.
Antero-posterior (to coccyx)	11.0 cm.
Transverse	10.8 cm.
Posterior sagittal	7.2 cm.

Plane of Least Pelvic Diameters:

Antero-posterior	12.7 cm.
Transverse	9.7 cm.

(Volumetric capacity 480 c. c.)

Fetal Skull:

Fronto-occipital	11.6 cm.
Circumference	35.4 cm.
Volume	750 c. c.

Note:—This patient also had a discrepancy of 270 c. c. and was sectioned.

CASE NO. 4

Inlet:

Antero-posterior	12.0 cm.
Transverse	11.7 cm.
Right oblique	12.6 cm.
Left oblique	12.2 cm.

Outlet:

Antero-posterior (to sacrum)	11.5 cm.
Antero-posterior (to coccyx)	10.1 cm.
Transverse	10.7 cm.
Posterior sagittal	6.9 cm.

Plane of Least Pelvic Diameters:

Antero-posterior	11.5 cm.
Transverse	9.1 cm.

(Volumetric capacity 395 c. c.

Fetal Skull:

Fronto-occipital	11.6 cm.
Circumference	32.6 cm.
Volume	585 c. c.

Note:—In this patient the discrepancy was 190 c. c. This was so close to the upper limit of 200 c. c. that it was felt best to deliver by section. Note also that the inlet is transversely contracted with the A-P a little longer than normal.

CASE NO 5

Inlet:

Antero-posterior	10.5 cm.
Transverse	13.4 cm.
Right oblique	12.3 cm.
Left oblique	12.5 cm.

Outlet:

Antero-posterior (to sacrum)	10.5 cm.
Antero-posterior (to coccyx)	9.1 cm.
Transverse	10.4 cm.
Posterior sagittal	5.5 cm.

Plane of Least Pelvic Diameters:

Antero-posterior	10.5 cm.
Transverse	9.3 cm.

(Volumetric capacity 425 c. c.)

Fetal Skull:

Fronto-occipital	12.2 cm.
Circumference	34.0 cm.
Volume	660 c. c.

Note:—In this case there was a discrepancy of 235 c. c. so section was performed.

CASE NO. 6

Inlet:

Antero-posterior	11.9 cm.
Transverse	12.9 cm.
Right oblique	12.9 cm.
Left oblique	12.8 cm.

Outlet:

Antero-posterior (to sacrum)	11.1 cm.
Antero-posterior (to coccyx)	8.5 cm.
Transverse	10.7 cm.
Posterior sagittal (to sacrum)	6.8 cm.
Posterior sagittal (to coccyx)	3.5 cm.

Plane of Least Pelvic Diameters:

Antero-posterior (to tip of coccyx)	8.5 cm.
(Volumetric capacity 320 c. c.)	
Transverse	9.0 cm.
(Volumetric capacity 385 c. c.)	

Note:—This was a case of generally contracted pelvis as is seen from the above measurements. The first baby had been lost at delivery. These measurements were taken at five months and an elective section was performed at term.

CASE NO. 7

Inlet:

Antero-posterior	10.5 cm.
Transverse	13.6 cm.
Right oblique	11.9 cm.
Left oblique	11.9 cm.

Outlet:

Antero-posterior (to sacrum)	9.0 cm.
(Volumetric capacity 385 c. c.)	
Antero-posterior (to coccyx)	7.0 cm.
Transverse	12.3 cm.
Posterior sagittal	6.2 cm.

Plane of Least Pelvic Diameters:

Antero-posterior	9.0 cm.
(Volumetric capacity 385 c. c.)	
Transverse	12.0 cm.

Fetal Skull:

Circumference	30.5 cm.
Volume	475 c. c.

Note:—This patient had a generally contracted pelvis involving all planes. The discrepancy was only 90 c. c., but in view of the fact that, as above stated, all planes were contracted it was felt best to deliver her by section.

CONCLUSION

I feel that roentgen pelvimetry has a piece of distinct value in the study of the types of cases outlined above. This is the view taken by most writers on obstetrics. As stated above, we do not as a rule base the decision entirely on the x-ray, but use the findings in conjunction with our clinical studies. Thus employed, the roentgen study is a very valuable aid in the cases under consideration.

DISCUSSION

Dr. J. N. Ane (New Orleans): I wish to thank Dr. King for the privilege of discussing his paper. His indications for roentgen pelvimetry should cover all types of cases requiring this method of examination. It is true that the value of this method must be determined in each individual case by the obstetrician.

Dr. King has stressed the necessity of careful clinical examination in the selection of cases for roentgen pelvimetry. This is important because roentgen pelvimetry can be done more accurately and efficiently on dry films before the onset of labor than on wet films after the patient has been in labor for a number of hours with no evidence of progress.

The three most popular methods of roentgen pelvimetry are: (1) The position or frame technics of Thomas and Jarcho with the many modifications including the opaque rule notched at each centimeter of length; (2) the stereoscopic methods of Johnson and of Moloy; (3) the volumetric methods of Ball and of Snow.

The Johnson method is considered the most accurate form of roentgen pelvimetry. The error should not exceed 2 mm. Another important advantage of his procedure is the opportunity of studying the bony pelvis and the fetal skull stereoscopically as advocated by Moloy and Swenson. While the diameters of the fetal skull can be determined in about 94 per cent of cases, diameters are not completely satisfactory because of the variation in the shapes of the fetal skull and because comparisons of fetal skull diameters and pelvic diameters are unsatisfactory. The Ball method offers the opportunity of comparing volume of fetal skull and volumetric capacity of pelvic diameters. Therefore, we have found that the combination of the Johnson and Ball methods offers the most satisfactory procedure for obtaining the greatest amount of information.

In an analysis of 1,406 cases measured, normal or greater than normal diameters were found in 881, or 63 per cent; contractions in one or more diameters of from 5 to 10 mm. were noted in 329, or 23 per cent, and contraction of 10 mm. or more in 14 per cent.

Dr. Menville and I were able to correlate roentgen pelvimetry with type of delivery in 362 cases. Of this group 205 were found to have normal diameters and 203 or 99 per cent delivered normally. Sixty-one cases had a contraction in one or more diameters of 10 mm. or more, and of these 52, or 85.2 per cent, required operative deliveries.

I agree with Dr. King that the importance of the mid-plane diameters has not been stressed sufficiently. In 44 cases in which the interspinous or bi-ischial diameter was contracted more than 10 mm., only 3 or 7 per cent delivered normally.

The incidence of serious contraction in the inlet alone was an infrequent finding. The majority of cases which failed to engage because of bony disproportion also showed contraction in the midplane and outlet diameters as well.

Dr. Walter Levy (New Orleans): I think that x-ray pelvimetry is a valuable aid to the obstetrician. It does not tell everything but it is an adjunct to diagnosis. Since the advent of x-ray pelvimetry, we have become much more conscious of pelvic architecture than before. We are using the classification of Caldwell and Moloy on the findings. By studying the pelvis from that standpoint clinically, and by x-ray, I think we are more apt to predict the type of labor we are going to have. Furthermore the x-ray is not the final answer to two things—how much that baby's head is going to mold and how much effort the woman is going to put out to deliver the baby. These are unknown factors which can not be anticipated clinically or by x-ray. Some cases have been seen at Touro which we thought with effort on the part of the mother would come through, but did not. Others on the x-ray plate seemed very likely to come through and did not.

I do not think Dr. King mentioned as to when these pictures should be taken. They should not be taken at the eighth month. They should be taken as near to the time of the anticipated labor as possible. I heartily agree with Dr. Ane as to midplane contraction being a dangerous one, particularly in occiput posteriors. They can not resolve as easily with mid-plane contraction. I think in the android type (male type) we get a higher percentage of posterior positions. In a breech where we really would like to know something as to head size we do not get as much knowledge as we should like for the obvious reason that the radiologists have not been able to give estimated number of millimeters of head as compared to pelvis. To repeat, if the x-ray has done nothing more, it has made us conscious of the architecture of the pelvis.

Internal measurements are the most important, and it is equally as important to take measurements of the outlet.

Dr. J. W. Reddoch (New Orleans): There is one point that I would like to bring out. Even though the pelvic measurements are normal, soft tissue dystocia has to be watched for. In this respect x-ray pelvimetry may be misleading, and what was thought to be an easy delivery really becomes very difficult, because of dense, unyielding soft tissue.

I believe Dr. King is correct in his estimate of mid-plane difficulties; it is at this pelvic level that the major troubles may arise.

I believe that Dr. Levy did not hear Dr. King when he stated that the x-ray studies are made about ten days before the expected date.

Dr. E. L. King (in closing): Dr. Levy stressed the molding of the fetal head and character of pains the patient is going to have; we can not determine that ahead of time by any method at our command. Some writer several years ago published an article claiming that giving excessive amounts of calcium before delivery increased difficulty of delivery because of increased calcium of the head. I do not think that is correct. I give adequate amount by milk or in other ways and have not had difficulty from that point; but we can not say, particularly in a postmature baby, how much that head will mold or how the patient will work or co-operate. The time to take the picture is a week or ten days before we expect delivery. That is difficult to determine; sometimes we get pictures too soon and sometimes get them the day before labor and get the report after the baby is born.

Another point I would like to make is if the delivery is a good deal further off than anticipated —three or four weeks, which is not at all uncommon—and there is some question about the original film, we should have another made. If we calculate the baby is due on a certain day and because of some perversity on the part of nature it is a week later, and the first set of pictures did not give much leeway, although all right at that time, we get another set. I did that with a patient who went five and a half weeks after expected delivery. We tried to induce labor but did not make the grade. The first set showed no disproportion. The next set showed 250 c. c.

The volume of the head in breech can be determined fairly well if you use special method but not on ordinary pictures; there is a special technic and method to get head measurements in breech delivery. As brought out the question of the shape of the sacrum on lateral views is extremely important. Of course we may get soft tissue dystocia and we can only estimate this clinically.

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THE CAUSES OF SYNCOPE WITH SPECIAL REFERENCE TO THE HEART*

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Transient, sudden loss of consciousness of short duration is termed syncope. Such states, if prolonged, and particularly if the

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onset is gradual, are termed coma. Both conditions differ from sleep in that non-injurious stimuli do not affect the state of unconsciousness. The events leading to syncope may stop short of a stimulus sufficient to cause unconsciousness so that light-headedness, a sinking sensation, numbness of the hands and feet, epigastric or precordial uneasiness, weakness, yawning, and nausea may represent the episode without actual loss of consciousness.

Despite the fact that a number of mechanisms underlie the development of syncope, the outward appearances of the patient are usually the same, save for variations in the picture dependent upon the speed of development and the intensity of the attack. The patient, usually in the standing or sitting position, collapses and the body lies limp and motionless. Facial pallor is marked; pupils are dilated and respiration becomes slow and either shallow or deep. Muscle twitching and, at times, even convulsions are seen. The attack, of short duration, usually quickly terminates when the horizontal position is assumed, and the episode is often over before competent medical observation of the pulse and blood pressure can be made.

Such attacks, since they frequently occur in healthy people without demonstrable serious disease to account for them, are usually given little serious thought by the physician despite the drama and the furor amongst the laity on their occurrence. This attitude, coupled with the fact that the physician is likely to see the patient only after the attack has terminated, has led to neglect of the patient showing these symptoms, especially in their milder forms, when a mechanism may be discovered which may be relieved. Of importance is the fact that, if such patients are seen in an attack, observations upon the cardiovascular system are very helpful in the determination of the type of reaction present. This is essential in therapy, for two episodes which are described by the patient or onlookers as identical not only may require different forms of treatment but the therapy for one may be disastrous if applied to the other.

Observation of a number of patients with syncope related to heart disease, including several patients with syncope on exertion, has led us to a survey of syncope in relationship to heart disease. The most satisfactory classification of syncope which we have noted is that of Soma Weiss[1]. His grouping consists of a simple listing of the various types of syncope, the entities being separated on the basis of mechanism and causative factors. This work has been a definite advance in the consideration of syncopal states. We have found it profitable, in the clinical approach, to subdivide this list and regroup syncopal states, not on the basis of the underlying mechanism leading to a disturbed circulatory balance, but upon the basis of the resultant altered hemodynamics. These changes, which can be determined rapidly by examination of the patient, along with certain historical facts, make up a set of data which quickly rules out certain possibilities in diagnosis and rules in others, narrowing and simplifying the problem of differential diagnosis as well as indicating possible approaches and dangers in treatment.

We propose to group syncopes into three categories: The first includes those patients in whom the mechanism underlying disturbed blood flow to the brain effects a pooling or deviation of blood which interferes with return flow to the heart. In this group, blood does not return to the heart in sufficient amounts to maintain adequate cerebral circulation. Since the disturbance in circulation occurs before blood gets to the heart, we call this type precardiac.

The second category consists of those in whom return of blood to the heart is adequate, but the heart fails to function adequately as a pump, as in extreme tachycardia, or asystole. This we call cardiac syncope, although it does not necessarily imply organic heart disease. Nathanson[2] has defined cardiac syncope as sudden loss of consciousness due to cerebral anemia of cardiac origin, and sudden cardiac death as fatal cardiac syncope.

The third group includes those in whom both of the above factors are normal, but

in whom there is an interference in blood flow to the brain somewhere between the heart and the brain itself. This is a postcardiac type.

In table 1 are listed the syndromes and conditions which produce syncope. These have been grouped into the three types, precardiac, cardiac, and postcardiac. It can

TABLE 1
TYPES OF SYNCOPE

Precardiac
Common fainting attacks
Postural hypotension
Carotid sinus syndrome—peripheral type
Pleural and peritoneal "shock"
Shock pictures, as with coronary thrombosis
"Central vasomotor" syncope (including hyperventilation syndrome)
Pulmonary vascular disturbances
Cardiac
Vagal stimulation pictures
Carotid sinus syndrome—cardiac type
Oculovagal syncope
Vagovagal syncope
Pleural shock—vagal picture
Stokes-Adams syndrome—organic cardiac
Asystole
Slow ventricular rate
Shifting ventricular pacemaker
Tachycardias
Paroxysmal tachycardia
Auricular flutter and fibrillation
Ventricular fibrillation
Congestive and anginal heart failure
Postcardiac
Carotid sinus syndrome—cerebral type
Hypertensive encephalopathy
Cerebral engorgement
Dissecting aneurysm
Hypoglycemic reactions
Angina pectoris
Aortic stenosis

be seen that the precardiac variety includes that group in which there is a sudden drop in pulse pressure associated, just before the syncope, with some rise in heart rate which usually falls due to vagal responses almost simultaneously with the onset of fainting. The fall is often to the range of 40/minute and not in the range seen in the cardiac type next to be described. Such findings in a patient lead immediately to a consideration of the mechanisms listed under precardiac in table 1 and those in the other two groups may be disregarded. The problem of differential diagnosis is greatly narrowed and attention may be focused on the few types of syncope producing this picture. Therapeutic procedures in instant need become immediately apparent; those which can be disregarded are known at once, for the prompt treatment of patients with precardiac syncope depends not primarily upon the mechanism producing the hemodynamic changes causing the syncope but on relief of the hemodynamic changes themselves, a change common to all types in this group.

This reaction is the type seen in common fainting attacks, a condition to which Lewis applied the term vasovagal syncope. There has been objection to the use of this term because the vagal effect is not essential to the syncope, which may occur when the vagus is paralyzed with atropine. The causes of common fainting attacks, the most common type of syncope, we shall not dwell upon. Sight of blood, overheating, venepuncture, emotional upsets and similar reactions, anemia, malnutrition, patent ductus arteriosus, aortic regurgitation, congenitally narrow aorta, instrumentation of the bladder, are only a few of the many causes, which range from unimportant reactions to serious organic disease. Postural hypotension falls into the precardiac group with changes in pulse pressure and pulse quite similar to those in common fainting attacks. The peripheral type of cartoid sinus syndrome, that resulting in dilatation of peripheral vessels with drop in blood pressure when the carotid sinus is stimulated, is also in the same group, as are certain types of pleural and peritoneal "shock." All the reactions that occur when the pleural space is invaded by a needle are not explained as precardiac syncope, but precardiac syncope is one of the reactions which does result from such procedures. So-called "peritoneal shock," in which there is sudden loss of pressure in the peritoneal cavity, falls into the same category.

What is commonly called shock, either resulting from surgical or medical conditions, usually appears in the differential diagnosis of syncope. The changes which develop

in the circulation—pallor, venous collapse, falling blood pressure—are quite comparable in common fainting attacks and in the picture of shock seen from coronary thrombosis, trauma and other etiologic agents. Since syncope is a transient loss of consciousness which comes on suddenly and lasts for a short period of time, it may be associated with shock, and, therefore, cannot be differentiated from shock when defined in this way. Shock can be differentiated from common fainting attacks for here we imply not only transient unconsciousness but a vascular mechanism. In essence, common fainting attacks and shock, therefore, differs from common fainting attacks, changes in the circulation are temporary and reversible, whereas in the usual shock picture, the circulatory changes are prolonged. The picture of shock, therefore, differs from common fainting attacks primarily in the transient nature and reversibility of the latter and the persistence of the former. The differentiation goes back to the cause, the cause of common fainting attacks being transient, being corrected by a change of position, those of shock not being transient and not being corrected by a change in position.

The condition described by Weiss as central vasomotor syncope, and exemplified by syncopal reactions to local anaesthetics and brain tumors, also falls into this group. Here also go pulmonary vascular changes that result, for example, from the Valsalva experiment, following which venous return is temporarily stopped, as well as pulmonary vascular disturbances resulting from compression of the thorax after which sudden release of pressure produces some pooling of blood in the chest.

All the pictures of precardiac syncope, then, are characterized by some disturbance in return of blood to the heart resulting in inadequate output and disturbed cerebral circulation.

Cardiac syncope, the second grouping in table I, may be broken down into at least three categories. All are characterized by extreme changes in heart rate with accompanying blood pressure changes. This finding differentiates the accompanying syncope from the other two groups, and, to repeat the remarks made in the discussion of the precardiac group, narrows the problem of differential diagnosis and immediately points out the direction which therapy must take.

The first of the three categories in this group is that of vagal stimulation resulting in asystole or a markedly slowed ventricular rate. Such vagal stimulation, if sufficient to produce an inadequate minute output of blood despite the fact that the output produced by each beat is greater than normal, will result in a picture of asystole with the blood pressure approaching zero, or very slow heart rate in which the change in blood pressure is less marked. Such pictures of vagal stimulation may be the result of hyperactive carotid sinus or of other reflexes, such as the oculovagal or vagovagal reflex, characterized by afferent stimuli arising from a vagal source being sent as efferent stimuli again down the vagus. Such pictures have been described in individuals with syncope on swallowing when a diverticulum of the esophagus has instigated the reflex. Pleural shock falls into this group if the reflex produced by the pleural stimulation is manifested in vagal stimulation.

Obviously these pictures may occur in the absence of organic heart disease. It is not usual for more than one of these reflexes to be hyperactive at a time. For example, the oculovagal reflex may be hyperactive when the carotid sinus reflex is normal.

Secondly, cardiac syncope may be produced when organic disease of the heart interferes with conduction from the auricle to the ventricle. This is the so-called Stokes-Adams syndrome of organic heart disease. The change from normal conduction or partial heart block to complete heart block may occur with a latent period before the ventricle takes up its own rhythm. If this period is sufficiently long, syncope may develop along with convulsions and the other symptoms characteristic of Stokes-Adams attacks. The same picture may develop if the ventricle does not stop

beating but the ventricular pacemaker, although becoming active quickly, is sufficiently slow, let us say eight beats per minute, to produce long intervals between each beat. Stokes-Adams syndrome may also develop in complete heart block, as is not frequently appreciated by many physicians, when the ventricular pacemaker shifts to another center which discharges at a very slow rate or with transient seizures of ventricular fibrillation.

In the third category under the cardiac grouping, the heart rate is extremely rapid, as in paroxysmal tachycardia or 1:1 auricular flutter; the efficiency of the heart as a pump is markedly reduced, and the cardiac output is so diminished that cerebral circulation is impaired. When this picture becomes sufficiently advanced syncope develops.

Cardiac syncope, therefore, may result from extremely slow hearts or extremely rapid hearts, both producing an inadequate output of blood. Both again may occur in the absence of organic heart disease or in the presence of organic heart disease. Under either circumstance the picture is a dramatic one which requires effective treatment.

Under the term cardiac syncope we must also discuss certain episodes of fainting associated with aortic stenosis and congestive and anginal heart failure. Proper classification of this group is not possible, but it is mentioned here because some believe that with congestive or anginal heart failure, particularly with exertion, the heart may not be able to increase its output sufficiently to meet the demands in the periphery. Here, despite the fact that blood pressure and heart rate would not be remarkably out of the range of normal, syncope might develop because of the inadequate response of the heart to exercise. That this mechanism is active in such patients and does enter into the development of syncope is not definitely established. For the present, however, since heart rate and pulse pressure are not remarkably altered and cardiac output is probably not reduced, we are placing these types in the postcardiac grouping.

The postcardiac group is characterized by syncope in the absence of lowered pulse pressure and extreme change in heart rate; and in their absence, the entities already discussed, except syncope on exertion with angina pectoris and aortic stenosis, need not enter in the differential diagnosis. Postcardiac syncope is most clearly exemplified by the third type of carotid sinus syndrome—the cerebral type. Since this can be produced experimentally in patients by digital pressure on the carotid sinus, it has been studied quite thoroughly, particularly by Weiss and his group. It is well known that carotid sinus stimulation may result in syncope despite the fact that the blood pressure is not lowered and despite the fact that the heart rate is not disturbed. In patients in whom mixed types of carotid sinus reflex occur, thorough atropinization to eliminate vagal effects does not stop the occurrence of syncope. In attacks, these patients become extremely pale and faint apparently from vascular effects in the brain. Weiss was able to show that there was no evidence of sufficient disturbance in the total cerebral circulation to account for the syncope. He has suggested that there may be localized disturbances in circulation affecting a portion of the midbrain which controls consciousness. Such attacks are frequently accompanied by convulsions which leads to their being considered, particularly when they occur spontaneously, as epileptic seizures. This part of the problem will not be discussed here except to state that there is adequate evidence to indicate that such episodes are not of the nature of epilepsy.

Syncope may also develop under other circumstances when the precardiac and cardiac mechanisms are not active, with disturbances in the circulation to the brain in the absence of diminished output by the heart. Syncope of hypertensive crises falls into this category, as does that accompanying cerebral engorgement. Syncope associated with dissecting aneurysm likewise may fall into this group, but it is not clear

in some of these patients that stimulation of the aortic nerves and vagal effects may not be responsible for the syncope. The transient, sudden loss of consciousness which occurs in hypoglycemic reactions is considered in the same category and possibly is explained by biochemical changes in the brain rather than upon circulatory disturbances. These transient losses of consciousness do fit the definition of syncope and are certainly postcardiac in type.

Angina pectoris and aortic stenosis are two conditions in which syncope has been noted and in which, in certain patients, changes in the blood pressure and pulse have not occurred. This would indicate, then, a disturbance in cerebral circulation not accounted for by reduction in cardiac output. It is possible, since these episodes of syncope occur on exertion, that the explanation of syncope in some of these patients lies in inadequate increase in cardiac output, as stated under the discussion of cardiac syncope, but there is little evidence to make this differentiation and in the absence of remarkable changes in blood pressure and heart rate we prefer to put them in this group. In both angina pectoris and aortic stenosis in some instances it is known that the other types of syncope, both precardiac and cardiac, are active in the production of fainting attacks. In those in whom this is not true, the postcardiac mechanism is most likely active.

One can see from the numerous types of fainting that a classification of the patient, if possible, into one of the three groups advocated simplifies the problem as far as clinical approach is concerned. Such classification does not indicate the mechanism responsible for the disturbance in circulation but does localize the changes in the cardiovascular system. Under those circumstances then, the number of conditions to be considered in differential diagnosis is greatly reduced. The classification is advocated primarily because of the help it gives in the bedside approach to the diagnosis, and, as we shall see, in therapy. The differential points on precardiac, cardiac, and postcardiac syncope are summarized in table 2.

Heart disease may produce syncope which falls into any of these three groups. It is, therefore, important that the particular types of heart disease which are causes of syncope in each group be considered as the occasion demands. In the precardiac type, the relationship of such conditions as coronary thrombosis to syncope with the sudden development of shock pictures is evident. Cookson[3] found, among 200 patients with acute cardiac infarction, syncopal or epileptiform attacks in 15. Syncope occurred in 10 at the onset in the presence of apparently severe peripheral circulatory failure. In 5 of the group the patients were over 70 years of age, indicating the possibility that cerebral arteriosclerotic disease may be of some importance in the development of syncope.

Even common fainting attacks may be of extreme importance in the elderly arteriosclerotic cardiac patient, especially when convalescing from prolonged bed rest. Sudden death in such patients who unexpectedly collapse in getting out of bed after prolonged rest is often unexplained.

TABLE 2
TYPES OF SYNCOPE

Differential Points

	PRECARDIAC	CARDIAC	POSTCARDIAC
Pulse pressure	Falls	Falls	Depends upon cause, no fall
Heart rate	Falls, then rises	Very rapid or very slow	No extreme change
Color	Pallor	Pallor then cyanosis	Pallor, no change
Convulsions	Rare	Common	Variable
Respiration	Slow & shallow or hyperpnea	Slow & shallow or hyperpnea	Slow & shallow or hyperpnea

For example, in a necropsy series of coronary artery disease, Nathanson[2] was unable in most instances to explain sudden death on an anatomic basis. Myocardial infarction, cerebrovascular accidents and embolic phenomena, so often expected, were not generally found. The heart was usually normal in size or only moderately enlarged and the structure of the myocardium, except in a small group, was compatible with life and an efficient circulation. Such evidence indicates that the mechanism of sudden death in coronary disease is probably usually physiologic. The two well recognized mechanisms leading to syncope and death are cardiac standstill and ventricular fibrilliation. Weiss[1] suggests that at times common fainting attacks may be responsible for the fatal outcome. Cardiac patients, during convalescence, are likely to be propped up in a wheelchair, a position in which syncopal attacks based upon an unstable vasomotor tonus and peripheral pooling are likely to occur. When such attacks do occur, the most important therapeutic procedure is the assumption of the horizontal position. The development of syncope, the loss of reflexes, permits the patient, when standing, to fall to the floor and assume this position. The cardiac patient who is propped up in a chair may, if he faints, not be able to assume the horizontal position. The persistence of the upright position would permit a prolonged period in which the pulse pressure is markedly diminished and is likely responsible for sudden death at times in such patients. It, therefore, is important in elderly patients with arteriosclerotic heart disease, particularly those who have a prolonged rest in bed, that they be watched during convalescence and not be placed under circumstances in which syncope may develop when they cannot assume the horizontal position.

Another relationship of the precardiac type of syncope to heart disease which is of considerable importance is the hyperactivation of the carotid sinus by digitalization, particularly in older and sclerotic individuals in whom this reflex is likely to be hyperactive anyway. Digitalization is a frequent cause of hyperactive carotid sinus syndrome whether of the peripheral, cardiac, or cerebral type. Weiss again points out that the procedure of digitalizing older individuals without heart failure as a prophylactic preoperative measure sometimes may lead to clinical pictures resulting from the hyperactive carotid sinus reflex, especially if the anesthetist creates pressure on the neck during anesthesia in adjusting the head or in taking the pulse. There is no adequate reason to digitalize such patients prophylactically because of the infrequency of the development of congestive heart failure in its absence preoperatively and because of the adequate means at the present time for rapid digitalization.

The cardiac type of syncope, resulting either from the vagal or non-reflex types of Stokes-Adams syndrome or from extreme tachycardia, needs little comment in relationship to heart disease. The points of differentiation of the vagal picture from the organic type of Stokes-Adams syndrome are evident. At times syncope which is described as resulting from auricular fibrillation may not necessarily arise upon this mechanism for, as Comeau[4] has pointed out, the ventricular standstill which results during the transition from the normal rhythm to fibrillation may be responsible for syncope that comes on with attacks of fibrillation rather than the tachycardia of the fibrillation itself.

The postcardiac types of syncope, particularly in relationship to heart disease, are most interesting because of the doubt which arises in the explanation of the production of symptoms. Hyperactivity of the carotid sinus in patients with arteriosclerotic disease has already been mentioned. In hypertensive crises and in dissecting aneurysm, relationships to heart disease are fairly clear-cut and need little comment here. However, some of the others deserve further comment.

In angina pectoris and aortic stenosis the relationship of the syncope to exertion is quite striking and is of great help in diagnosis. At times in other forms of heart disease a relationship to exertion is seen.

Congenital heart disease, particularly with hypoplasia of the aorta, aortic regurgitation, mitral stenosis, congestive heart failure especially with pulmonary edema and cardiac asthma, are occasionally accompanied by syncope on exertion, but not as strikingly as is aortic stenosis and, at times, angina pectoris. It will be noted that these are likely to develop without regard to exercise. As a matter of fact, exercise may benefit venous return in the precardiac type and thereby help to prevent fainting. In syncope on exertion one should look for angina pectoris or aortic stenosis in the background. Angina pectoris sometimes is associated with aortic stenosis, and angina pectoris, aortic stenosis and syncope may occur in the same patient.

The association of exertion and syncope has received little attention in the literature. White[5] has found that syncope is uncommon in angina pectoris and occurs only occasionally. Greatest interest has been in the French literature. Gallavardin has noted syncope with auriculoventricular dissociation[6], with a normal cardiac mechanism and hypotension[7], and with aortic stenosis[8]. The association of syncope and effort has been described by others. Gravier's patient[9] had a normal mechanism during attacks, and we have seen two patients of this sort.

The mechanisms whereby anginal pain develops in aortic stenosis are not clear and have never been adequately worked out. Autopsy studies[10] indicate in some of these patients that the aortic lesions are not in close association with the coronary orifices. Several explanations have been given which involve the failure of the cusps to cover the coronary orifice when open. This could produce a suction effect in the coronary arteries comparable to the mechanism utilized in the cleaning of pipettes and be responsible for the anginal syndrome. A discrepancy between coronary circulation and cardiac work has been put forward.

The mechanics of syncope are not clear in those instances in which the blood pressure and pulse are not markedly changed. Marvin and Sullivan[11] felt that activity of the carotid sinus might be responsible and French reports also favor some type of nervous mechanism. Carotid sinus activity has not been proved in a number of cases where tested[10] and furthermore the association with effort sets these episodes apart from the usual carotid sinus reflex. A possible inability of the heart to increase output to meet the sudden increase in circulation demanded by exercise has already been discussed.

The therapy of syncope in relationship to heart disease depends primarily upon the causative factors which require treatment. Precardiac types, of course, require loosening of clothing and the assumption of the horizontal position to promote increased venous return. The failure to carry out this procedure, as pointed out above, can be responsible for sudden death. If symptoms are not quickly relieved, olfactory stimulants and epinephrine and adrenalin-like products are advocted as well. Atropine is not helpful. In some instances artificial respiration and 10 per cent carbon dioxide in 90 per cent oxygen and cardiac massage may be necessary. In the carotid sinus reflex, novocaine block and surgical procedures are preventive measures as are ephedrine and related drugs in postural hypotension.

In the cardiac type of syncope the presence or the absence of vagal effects is extremely important in the approach to therapy. If the vagus is active, atropine in doses of 1/60 grain will abort the attack. This drug, or tincture of belladonna, may be given regularly to prevent the development of attacks in the susceptible, especially those with hyperactive cartoid sinus reflex. In the organic type of Stokes-Adams attacks the most beneficial drug in asystole or very slow heart is epinephrine. It may be necessary to give this drug, in the precardiac as well as in the cardiac type of syncope in 1:10,000 dilution intravenously rather than in 1:1,000 dilution because of the impairment of circulation and the inability to take the drug up when given subcutaneously. Epinephrine may be nec-

essary by intracardiac injection in Stokes-Adams syndrome. Again, in the prevention of such attacks, adrenalin-like products, which may be given by mouth, such as ephedrine in 3/8 grain doses, are effective. Thyroid substance has been advocated to increase the irritability of the heart and also prevent the development of such attacks. It is given by mouth in the usual doses. Barium chloride we have not found to be beneficial. Epinephrine is also beneficial in those episodes of complete heart block with shift of the pacemaker and the institution of a markedly lowered ventricular rate. Epinephrine increases the irritability of the heart muscle and steps up discharge of impulses from the pacemaker. A word of caution must be added about the use of epinephrine in Stokes-Adams syndrome. Rarely, but at times, such episodes may result from transient attacks of ventricular fibrillation. Under this circumstance the administration of epinephrine may aggravate the ventricular fibrillation or bring on an episode when not present at the time. This drug, therefore, may be responsible for the death of the patient under these circumstances. Parenthetically, we might state here that epinephrine is also contraindicated in central vasomotor syncope due to local anesthesia for the drugs are synergistic. Here, barbiturates are in order.

In the cardiac type of syncope that may rest upon extreme tachycardias, the therapeutic indications are those of these conditions.

In the postcardiac type of syncope the cause is treated if possible. In that related to angina pectoris and aortic stenosis, there is no adequate form of treatment to combat the development of syncope on exertion. In patients with angina the use of dilator drugs, such as nitroglycerine, has been found to benefit the syncope as it relieves the pain. In aortic stenosis, as well as in angina, the most important procedure in prolonged syncope is to control the degree of exertion with which these attacks are brought on.

CONCLUSIONS

In conclusion, we may say that syncope may be classified into three groups depending not upon the mechanism of production but upon the state of the cardiovascular system resulting from the mechanisms producing the syncope. This classification is of help in the differential diagnosis and the approach to the treatment of syncopal attacks. Heart disease may be responsible for syncope in any of these groups and a careful evaluation of the patient after an examination to establish the nature of the episodes, is necessary not only for a rational approach to treatment but to eliminate the dangers of certain therapeutic procedures commonly used in such patients.

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DISCUSSION

Dr. H. T. Engelhardt (New Orleans): There are certainly few acute clinical manifestations which present a more alarming and more startling picture than syncope.

As we have pointed out, syncope is not the result of a single mechanism but rather a number of disturbances are responsible for the occurrence of the syndrone. It is impossible to dwell at length upon the differential diagnosis but we think it is important to emphasize the similarity of syncope, particularly the postcardiac type, with that of epilepsy. It will be appreciated that syncope may be preceded by aurae, and that fainting may be accompanied by convulsions. A comparison of the

features of syncope with those of epilepsy serves only to emphasize their similarity. In the last analysis it is only by weighing the evidence in favor of each that a specific diagnosis is reached.

When the pathogenesis of the attacks is not clear—epilepsy is likely, because in the majority of cases, detailed investigation usually reveals the cause of syncope, and by the same token, nocturnal attacks, aurae of long duration, especially olfactory aurae, are important bits of information in favor of epilepsy. Convulsions with little prodromata and biting of the tongue are also findings of importance in epilepsy. There is usually a fall in blood pressure in syncope, of the precardiac and cardiac varieties, a slow pulse and rapid recovery from the attacks; these are usually not found in epilepsy. The diagnosis of postcardiac syncope from that of epilepsy is at times a particularly difficult differentiation to make. In the types of syncope which can be reproduced experimentally such as the cerebral type of carotid sinus reflex, electro-encephalographic studies have shown that the convulsive disturbances are not those of epilepsy.

We feel that the differential diagnosis of syncope is assisted by a division into precardiac, cardiac and postcardiac varieties.

This classification is by no means complete and final but we believe that it makes for a clearer understanding of the subject and is a real aid in organizing a logical therapeutic approach to the problems.

Dr. J. H. Musser (New Orleans): Syncope is a condition that varies in intensity and severity. As Dr. Sodeman brought out, in some instances it may result in the death of the patient. On the contrary it is also quite possible that the patient may simply complain of occasional dizzy attacks or a feeling of weakness, rather transitory in character, and then come to the doctor for advice and recommendations. The more severe forms are so outstanding that there is no doubt the doctor would make every effort to determine the cause of fainting or of prolonged unconsciousness. On the other hand in mild attacks he should not dismiss the patient with the comment that the blood pressure is abnormal or that the brain does not get the blood at the right time or something soothing of that sort; the mild attack of today may be the severe one of tomorrow so that early recognition is of prime importance.

Dr. A. A. Herold (Shreveport): This is quite an interesting presentation by Dr. Sodeman and Dr. Engelhardt, especially in reference to precardiac and postcardiac cases. I could not help but think of a patient, the type of which Dr. Sodeman stressed, the Stokes-Adams syndrome, whom I had a few years ago. The patient was brought in to me, sometimes, a few days or weeks apart, completely comatose; complete attack of syncope, pulse rate of forty or less and usually with a gash on the head. A real severe head injury convinced him of the seriousness of his condition. We finally put him to bed from which he did not get up.

There are other causes, of course, of syncope. As I understand it, this paper especially refers to the heart. One which should not be overlooked is syncope from induced or spontaneous hypoglycemia. For example, the patient is walking along the street, feels the effects of insulin and falls out. That certainly can not come under this heading or the heading of epilepsy. For several years attempts have been made to prove that hyperinsulinism attacks are the same as epilepsy but this is not true. I think this paper is worthy of study and I intend to study it when it is published in the Journal. There are so many things brought out and there is not time enough allowed for prolonged discussion. It will do us good to make a careful analysis of Dr. Sodeman's and Dr. Engelhardt's remarks.

Dr. J. E. Knighton, Sr. (Shreveport): The essayists have referred to attacks of syncope associated with convulsive seizures and Dr. Herold mentioned the fact that we sometimes see attacks of apparent syncope associated with hypoglycemia. I think it is very well to think of this possibility for the simple reason that there are some very definite diagnostic features in connection with that condition that are probably not associated with syncope of other types. For instance, the syncope associated with hypoglycemia does not, as a rule, occur in instances such as pointed out by Dr. Herold but most frequently we see those attacks early in the morning; frequently before the patient has gotten out of bed and without any physical effort whatever. That is at the period, of course, when the blood sugar is at its lowest point. Associated with the symptom of syncope and convulsive seizures, we usually have marked tremor and excessive sweating, absolutely wet all over with perspiration. Usually a very careful study of the patient's history will give suggestions of this probable condition and we should think of those things as possibilities.

Dr. T. A. Watters (New Orleans): I welcome this paper, as a neurologist, because I think it is a simple, practical classification of many of the syncopes that we see in our field. One of the most frequent complaints we get among nervous patients is "spells" and sometimes it is quite trying to work out not only the psychology but the physiology of these "spells." Dr. Sodeman has seen several cases with me and we have had trouble in determing what is in operation in these patients with "spells." I remember one or two years ago I saw a patient Dr. Musser had seen and had gone over. It was a very interesting case. A woman, college graduate, married to a college graduate, with several degrees. They were at one another's necks. She said she had been having spells and came to see us. At first we thought it was hysteria. It seemed that this woman descended from one level of adjustment to another, from

intellectual to emotional. She threw one fit, which went further than anticipated, by showing the classical convulsive pattern. It is conceivable that convulsions are defense mechanisms. In the animal kingdom there are a group of animals that devour their prey, in hot blood after the kill. Another group wait until their prey is dead, cooled off, and smells before they eat it. In this biological theory the prey when faced with a situation from which he can not escape or faced with an enemy he can not successfully attack, develops unconsciousness, syncope or convulses. Certainly this is frightening to many animals and thereby defends the convulsing organism.

Convulsions do a nice trick. For many years at Charity Hospital I have seen several such cases brought in as epileptics. There are prevalent many superstitions and fears about convulsions. Many police are fearful and stand in awe of an epileptic. Several may pool their efforts to bring the patient to the hospital. On the other hand, these same policemen will capture a dangerous criminal, often single-handed. However, when convulsions are involved, superstition overtakes rationality.

During the era of insulin we have learned much. We know, for example, there are variations and degrees of convulsions; they aren't all alike.

Several times a week we induce convulsions in schizophrenic and depressed patients. The whole matter of convulsions to us is a changing picture. We have the electroencephalogram today, giving new insights into interpretations of epileptic disorders.

This paper recognizes the integration between mind and body, and what operates in the cardiac system in relation to what is going on in the nervous system—particularly consciousness. What the authors have mentioned about epilepsy is indeed important to us who practice psychiatry.

Dr. W. A. Sodeman (in closing): There are several things that are a little confusing in discussions you might read about syncope. The first is the relationship to shock as a term commonly used to designate a state resulting from trauma and so on. Syncope, the way we use the term, is sudden, transient loss of consciousness. It may accompany shock, so one cannot differentiate it from shock as stated in the texts. One may differentiate the syncope of shock from certain other types of syncope, for example common fainting attacks.

I did not have time to mention the occurrence of syncope in relationship to use of drugs. Of the drugs used in cardiac patients nitrates are most likely to instigate syncope. Individuals given nitrates may develop fainting attacks while standing and are relieved when lying down.

Dr. Engelhardt's remarks on epilepsy in relation to syncope are important, particularly with the convulsive disorders which occur in the cardiac and postcardiac types. The milder forms which Dr. Musser mentioned are often confused with syncopal episodes. Dr. Musser mentioned the fact that sometimes episodes of syncope are extremely marked. Patients at times, when approached with a needle develop an attack of fainting because of the fact that they are going to be stuck. Sometimes after an injection is given the attacks are so severe that there is confusion as to the cause. They may be so dramatic and so intense that after parenteral injections they have been interpreted as anaphylaxis rather than syncope.

Dr. Herold's remarks on hypoglycemia giving syncope not upon a vascular basis but on some biochemical basis, are interesting and true. This means that syncope is not always related to cerebral circulation as far as we can measure it. In some cases which have been studied it has been impossible to show any total change in cerebral circulation. There are local changes but how they are brought about is not clear. They apparently occur in the mid-brain and the center of consciousness in that area is affected.

Dr. Knighton's remarks on diagnostic measures and hypoglycemia are important in differentiating attacks.

Dr. Watter's remarks in reference to "spells" are very important because of the fact that patients who do have these episodes are very difficult to analyze and at times difficult to trace down as to the cause of attacks. If we do not make attempts to determine the type of syncopal attack which occurs particularly in the milder forms, we may be treating an individual for some state which he does not have when he does have some type which another treatment or procedure would terminate for him.

Nothing was said about simulated syncopal attacks; in patients who pretend to have attacks of syncope simple stimuli will let you know they have not fainted but are pretending.

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DISSECTING ANEURYSM OF THE AORTA IN A BOY

J. W. McLAURIN, M. D.
BATON ROUGE, LA.

Dissecting aneurysm of the aorta has been known to pathologists for many years, the first complete report, according to Sailer[1], being made in 1708. In 1935, Gurin, Eulmer, and Derby[2] reported on 18 of 7,000 patients seen at the Massachusetts General Hospital, in none of whom had the condition been identified before death. T. Shennan[3], in his thorough study, gives no reports of cases younger than the third decade of life, while Klotz and Simpson[4], although tabulating two cases from one to ten years of age and seven cases from

eleven to twenty years of age, confine their case reports to cases ranging from 23 to 54 years of age. Schattenberg and Ziskind[6], writing in 1938, say: "It may occur at any age," a statement in which all writers on the subject agree. Before the Southern Section of the Otological, Rhinological, and Laryngological Society, in 1937, two cases were reported in which bronchoscopic examination had been done to determine the cause of dyspnea. The results were rupture and death. The total number of published cases is around five hundred, with only about 33 having been diagnosed clinically. The present case is reported because of the age of the individual and because of the relative infrequency with which the diagnosis is made antemortem. The reasons are probably that there is no syndrome to follow in diagnosis, and that the condition closely simulates various intrathoracic and intra-abdominal conditions.

When a patient presents: (1) Sudden onset of severe pain, with a history of hypertension; (2) a rapid or enlarged heart, with or without murmurs; (3) the presence of shock; (4) slight fever or leukocytosis; (5) dyspnea and cyanosis; (6) variation in pulse between upper and lower extremities —then dissecting aneurysm of the aorta should be considered in the differential diagnosis.

CASE REPORT

M. M., a white male, aged 15 years, was seen in the office on July 26, 1943. He complained of a discharging left ear, with some pain, no tenderness, and a slight elevation of temperature. He had recently (two weeks) been in bed with a "flu" infection for which he was treated by his family physician with "sulfa drugs." He had a history of acute nephritis at the age of six years, at which time he had had an adenoidectomy and tonsillectomy. There was no other history of serious illness or accident.

Physical examination revealed a well nourished, somewhat pale young male, not apparently ill. His only ear, nose, and throat findings were a subacute otitis media (left), with an inadequate central perforation of the tympanum, and rhinitis, with infected adenoid remnants.

Routine office procedures were carried out for the rhinitis and adenoid infection, and a surgical incision was made in the left tympanum. He was instructed to return on July 28. The following day his temperature was normal, his otalgia had subsided, and his entire infection improved.

On July 28, while waiting for his appointment, he suddenly complained of a severe pain in the thoracic and upper lumbar region of the back, and he was somewhat nauseated. Due to the severity of the pain and the nausea, no nose or throat treatment was given, and the ear only checked to determine if the incision was adequate. He was sent home and advised to have his family physician check his chest and urine. This was done, with essentiality negative findings.

About 10 hours later the patient began to have frequent short convulsions, accompanied by impaired vision. He was admitted to the hospital. The ear, nose, and throat examinations were essentially the same as earlier in the office. Examination of the chest presented no pathology. The blood pressure was 170/110. The temperature, pulse, and respiration were normal. The neurologic examination presented no pathology. The eyegrounds showed no findings other than moderate engorgement of the retinal vessels. The spinal fluid was clear, with three cells (lymphocytes). The pressure was 34 mm. The patient had a total of 13 convulsions, lasting from two to seven minutes, in the next 12 hours, two of them immediately following the spinal puncture. His pulse and respiration remained good between convulsions. He expired suddenly about 12 hours after admission to the hospital and 23 hours after he first complained of pain.

LABORATORY REPORTS

Urinalysis: Color, yellow; reaction, acid; specific gravity, 10.21; albumin, trace; sugar, negative; indican, negative; acetone, negative; diacetic acid; positive; crystals, none; casts, few hyaline; epithelium, small amount; pus cells, moderate number; blood, many R.B.C.

Blood examination: Hemoglobin, 75 per cent; color index, 8; erythrocytes, 4,770,000; leukocytes, 15,650; small lymphocytes, 8; large monocytes, 3; polymorphonuclears, 87; eosinophiles, 2; no plasmodia found; N.P.N., 42.8 mg. per 100 c. c.

Cerebrospinal Fluid: Source, lumbar puncture; cell count, 3 lymphocytes.

	On admission	Maximum	Minimum
Temperature	98	100.2	98
Pulse	90	100	90
Respiration	22	26	22

NECROPSY REPORT

The necropsy findings were essentially negative with the following exceptions:

Pleural Cavity: The left pleural cavity is free of fluid, exudates, and adhesions. The right, however, is almost completely filled by a large quantity of clotted and unclotted blood which compresses the lung upward and toward the median line. No exudates or adhesions are present.

Pericardial Cavity: The pericardial cavity contains a normal quantity of straw-colored fluid. The pericardium is smooth, white, glistening, and free of exudates and adhesions. The translucent epicar-

dium reveals a slight deposit of sub-epicardial fat, spreading into a thin layer over the base of the ventricles, along the interventricular septum and the course of the coronary vessels.

Heart: The heart appears somewhat larger than normal; on section, however, through the thickened myocardium, only those changes consistent with hypertrophy are noted. There are no structural valvular changes, nor developmental anomalies present.

Aorta: The intimal structure is smooth, glistening for the greater part, although here and there are seen small, scarcely visible, yellowish atheromatous plaques, particularly pronounced in the arch. Two and one-half inches below the aortic valve is a linear tear one-half inch in length. From this point the blood column has dissected between the muscular layers of the aortic wall, extending below to the level of the diaphragm, and above almost to the aortic valve. At the site of the linear tear in the intima, perforation has occurred, permitting the escape of blood through the mediastinal tissues into the right thoracic cavity.

Kidneys: Both kidneys are larger than normal in size, pale, and opaque in appearance. Diffusely scattered through the external surface as well as in the cortical area, on section, are numerous small punctate hemorrhages. The divisions of the cut surfaces are well defined; no distortion or destruction of the architectural detail is noted. The calices and pelves show nothing of importance.

ANATOMICAL DIAGNOSIS

(1) Dissecting aneurysm of the aorta.
(2) Hemothorax, right.
(3) Subacute and chronic nephritis.
(4) Early atheromatous aortitis.

NEPHROSCOPIC DIAGNOSIS

Nephroscopic section of tissue removed at post mortem examination shows only those changes consistent with the gross pathology described above.

Comment: No definite diagnosis was made in this case prior to death. We were attempting to make a diagnosis on a nephritic basis, assuming that the otitis media had exacerbated a latent nephritis.

CONCLUSION

In all cases, regardless of age, of severe pain in the thorax or abdomen that cannot be easily explained on other bases, dissecting aneurysm of the aorta should be considered, so that the patient's slim chance for survival shall not be lessened by unnecessary procedures.

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WHAT MAKES MEDICINE PSYCHOSOMATIC?

SAM NELKEN, M. D.
NEW ORLEANS

In medicine, as in science generally, the great strides of progress follow the discoveries of new tools. These tools are not only apparatuses, like the microscope and the x-ray; they are also methods, like the cultivation of micro-organisms; and ideas, like the cellular theory. Often the apparatus and the idea are integrated into one, as the microscope is with the cell theory. When we get hold of a new tool, we proceed to try it out on the old problems, to push its use as far as is worthwhile; in so doing we neglect for the time the problems which will not yield to it.

For the past half-century and more, we in medicine have been exploiting a marvelous set of tools, and reaping almost undreamed-of victories over human ills by our use of the microscope, the chemical laboratory, and other means with which you are all familiar. Some of us were a little dazzled by these successes, and believed that these tools would conquer *all* ills if used intensively and skillfully

*Presented at the Interdepartmental Seminar, Louisiana State University Medical School, June 28, 1944.

enough; all disease was supposed to be basically a matter of cellular pathology. Others, wanting naturally to help as many people as quickly as possible, tacitly abandoned the attempt to find out exactly what was wrong with the patients they saw; they tried instead to find in each patient something that they already understood, some cellular pathology that could be treated by their wonderful tools. Often, like Procrustes, they forced the patient to fit their methods without much regard for his actual troubles. These errors, made with good intentions, brought pain and loss nevertheless; those who made them could not avoid seeing that something was wrong, but they were often so blinded by the successes of their methods that they blamed the patients for the failures. Some were even angry, as if the patients they could not help were playing some kind of a practical joke on them. But, of course, no set of tools is omnipotent; we were bound to come against the limits of ours, and the more vigorously we exploited them, the sooner their limits would be reached, and our pretensions humbled. These failures meant that new tools, new methods, new ideas were needed; that the scope of medicine had to expand not merely further, but in new directions.

Gradually it began to be borne in upon us that these bodies we were dealing with were not just complex assemblies of cells, tissues, organs, and systems, driven and determined by their parts; we came to realize more and more, as we lifted our tired eyes from the microscopes and looked out past rows of test tubes, that these bodies belonged to *people* who lived complicated lives among other people, and that they used and abused their bodies and the various parts of them in all kinds of ways. Standing before this new view of our problems, we find at hand the new method, the new tool with which to carry on the attack; it was devised and developed by a man who began his medical research with the pharmacology of cocaine, who was among the very first to see how medicine had to expand, who became the Vesalius, Harvey, Pasteur, and Virchow of psychiatry: Sigmund Freud, the discoverer of psychoanalysis. The use of his method or a modification of it enables us to learn, from speech, gestures, and actions, the characteristic ways in which our patients use their bodies for work, for pleasure, and for the emotional expressions and communications which relate them to other people. In particular, we have learned a good deal about the enormously varied bodily expressions of emotion and their relations to some otherwise unexplained types of lesions, and about people's reasons for *wanting to be ill* or injured which compensate for the disadvantages; and about treatment directed at people's habits of misusing their bodies, instead of merely at the structural results or by-products of that misuse. This new and growing understanding, integrated with all the old and still-growing understanding, constitutes the field which is now called psychosomatic medicine, and which will in future, I trust, be simply and properly called *medicine*.

So much for the broad outlines; but, you will want to know, in this expansion of the medical subject-matter, what becomes of the history, the physical examination, the laboratory work, the treatment in ward or clinic? Well, they expand also—not merely by addition of new elements, but by reintegration and embodiment of the advance in understanding.

For one thing, the history and physical examination are *combined* to a greater degree than before. Good physicians always began to inspect the patient as soon as he came in, and knew that some bits of the history might be brought out during and after the physical examination, for various reasons. In psychosomatic examination, we are alert to all the hints of feeling which are in the patient's way of presenting himself and his problem; these concern us because his emotional attitude toward the physician is of first importance in understanding his trouble, in treatment, and in evaluating the results. We note his way of telling his story, the changes in voice, face, and gesture which have emotional meaning,

the pauses, sharp changes in train of thought, corrections, contradictions; we ask ourselves "How is he trying to get me to feel toward him? What does he want of me besides what he appears to?"; in short, we are watching for evidences of ulterior motives, for indirect expressions, for hints, for underlying trends, as well as seeing what the patient intends us to. We let him tell his story in his own way; and this is less boring in psychosomatic examination, because his verbosity, circumstantiality, and seemingly irrelevant details now are seen to have meaning in the whole picture. The physical examination begins with the handshake when the patient enters; we can learn to tell a lot from this physical contact, beginning with what we already gather half-intuitively from it. When someone crushes your hand, you know at least vaguely that he has aggressive and domineering tendencies; and you feel at least vaguely resentful of being overpowered in this small way; but you probably do not wonder, unless you have thought about the intricacies of human expression, what timidity the hand-crusher is trying to conceal behind this bold front. Such timidity and its disguise may be highly important factors in his trouble. Our observations of facial expression, gesture, blushing, or sweating, during the history taking are physical examination by inspection. We also watch for evidences of somatic muscular tension and relaxation; and in the formally physical part of the examination we ask the patient to relax, note whether he can, and what feelings or thoughts he expresses while trying, because people often use muscular tension to suppress painful thoughts, e. g.: in gritting their teeth. We are, of course, interested greatly in autonomic behavior; and we note carefully the patient's emotional response to undressing, to being handled, being looked at, and any special reactions associated with the examination of particular parts and defects. Quite commonly the patient will be reminded of additions to the history by some part of the physical examination, and the connection will usually be interesting; often patients become considerably franker after they have undressed and relaxed—a sort of psychological undressing—and add to the history, or correct it, in highly significant ways. These are things which you have probably all noticed from time to time; the psychosomatic point of view endows them with full meaning, and integrates them with the other findings in our understanding, as they are already integrated in the patient himself.

From the psychosomatic point of view we are interested not only in the effect of emotional states on the commonly reported laboratory findings, such as blood and urine sugar, basal metabolic rate, and so on, but in the reactions of the patient to the associated procedures, such as being stuck with a needle, having to breathe with a slight effort through the mouth while the nose is fastened shut, having to lie quiet for some time. These responses indicate to us the presence or absence of anxieties which may be of great importance in the understanding and handling of the patient's troubles. There are some people, for instance, who actually rest less if they are kept in bed than if they are allowed to be up and about a little; they have intense anxiety expressing itself in mild agitation, and if they have to be quiet they just "burn up" internally. Sedation helps these people sometimes, but psychotherapy directed at the sources of the anxiety is the treatment of choice.

Psychosomatic therapy consists, in general, of treating the patient's habitual misuse of his body along with the treatment of the resulting lesions or intercurrent diseases. Such misuse, no less than normal use, achieves something of value for the patient; this is a point which must never be overlooked. Psychotherapy, then, must help the patient to find other methods, other aims, which are less costly and harmful and more valuable, which we call *normal.* As the patient talks more or less frankly about himself and his troubles, the comparatively unbiased psychotherapist is able to recognize and call to his attention repressed wishes and tendencies which he has

unconsciously been gratifying to some extent by the very behavior or symptoms of which he complained; this gratification is his gain from the illness. When the patient becomes aware that he is largely or entirely producing his troubles himself to satisfy previously unconscious needs, he is in a position to substitute methods or aims which are more reasonable, less costly, and altogether far more satisfactory to him and to others around him. In many cases he gains this awareness quite readily; these are cases which will eventually constitute *minor psychiatry*, to be handled by adequately trained general practitioners just as minor surgery is. Other cases will be analogous to severe orthopedic problems, will require prolonged and deft psychotherapeutic handling, and will have to be treated by specialists. Psychosomatic treatment, however, employs psychotherapy as *one* of its tools, to be integrated in use with the whole armamentarium of medicine and surgery; a perforated peptic ulcer will, of course, be treated surgically, and psychotherapy will be used against the sources of the gastric over-activity to avert the recurrence. Medical treatment of gastric ulcers will be judiciously combined with psychotherapy by physicians who realize that abandonment of responsibility, going to bed, and dieting on milk and cream constitute a return to an infantile way of life, a regression; and who recognize the psychological advantages and disadvantages of this regime as well as they do its buffering of acid.

In closing, I want to point out that the main obstacle to the development of medicine in the psychosomatic direction is probably in the attitude of physicians themselves, in their traditional and almost unconscious *overlooking* of emotional factors in patients, especially the emotional advantages of illness which are so important in neuroses and psychosomatic conditions. As an interesting but distressing effect of overlooking one sees in the clinics many chronically neurotic patients who have been so to speak "organically trained," generations of bored residents and interns taught them that the doctor is not interested in their emotions nor in any troubles without bodily localization. Since coming to the hospital was emotionally valuable to them, they acquiesced in this, and translated most of their personal problems into organ-language, a sort of medical double-talk which sounds like disease but does not fit recognized entities. These people, as you know, are a heavy burden to the hospital, especially as they are not really being treated or cured, but only getting a perverse kind of pleasure out of hospital care to take the place of some normal satisfactions which their lives lack. The maturing of psychosomatic medicine promises to abolish this troublesome and unhappy group of patients by understanding and treating their actual problems, rather than taking the neurotic disguise as the whole truth. Its new tools and new ideas should relieve many headaches of both patients and physicians for which no remedy was known before.

INTESTIONAL OBSTRUCTION FOLLOWING THE USE OF COTTON

CASE REPORT

VINCENTE D'INGIANNI, M. D.†
NEW ORLEANS

A great deal has been written on the technic of closing wounds with cotton, stressing size of suture material, and the method by which it should be implanted; but nothing has been said of the danger of leaving long ends of the suture material in the abdomen or on objects that are to be placed in the abdomen. In interrupted suturing the clippings multiply and meticulous care must be exercised to prevent their being carried into the wound.

This case is being reported because one of these pieces of cotton found its way into the abdomen and caused intestinal obstruction:

CASE REPORT

I. M., a white female, aged 21, had had an appendectomy in 1940 and cotton was used in the procedure. On January 9, 1943, she was taken

†From the French Hospital.

with severe abdominal pain and vomiting. The following day she was admitted to the hospital, where a diagnosis of intestinal obstruction was made, clinically and roentgenologically. She was prepared for an operation. Inspection of the peritoneal cavity revealed collapse of the ileum and of a portion of the jejunum with dilatation above the constricted area. Exploration of this area revealed a band circumscribing the gut, the ends of which attached to the mesentery. When the band was removed it had the appearance of a piece of cotton. It was studied microscopically and verified as such.

DISCUSSION

It becomes essential, when cotton is used, that there be some definite place on the operating field for a receptacle wherein all free ends of cotton might be discarded. Also, if all sutures were left long until each particular phase of surgery had been completed, all suture ends could be disposed of simultaneously.

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THE NEW YEAR

We trust that our readers have had, in spite of these parlous times, a satisfactory and completely cheerful Christmas. For the New Year we wish you all good health and happiness, although we realize that with the horrible war going on no one can feel truly happy and in the homes of many there resides sadness and unhappiness.

What this new year will bring forth no one can predict. Six months ago we felt that the conquest of Germany would have been accomplished by now. Instead of victory over the Hun, we are now facing the prospect of a long continued struggle with an enemy who was always dangerous, who fights with courage and tenacity and who is a foe not to be underestimated. The tragedy of the war, as with all wars, is the killing and maiming of the best of our young citizenry. When we read the accounts of the deaths in action of the young men who have just completed many years of arduous study and work in preparing themselves to be physicians, we can appreciate best the terrible toll that war takes. May this horrible world-wide conflict be over in the near future is the best wish that any American can have, irrespective of whether or not his sons and daughters are in the conflict or whether he has dear ones close to him who may be killed or permanently crippled.

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HEALTH INSURANCE

The magazine *Time* reports accurately and fairly the numerous developments of medical science and medical economics. As a matter of fact, there are many doctors, reading the section entitled "Medicine," who receive the first inkling of changes or of recent discoveries that have taken place in the field of medicine. This is no reflection on the physician because it would be impossible for him to take and read every medical journal that is published. However fairly *Time* usually may be, the account entitled "The Big Debate", which has to do with a recent meeting of the National Physicians' Committee, in some respects is somewhat unfair to the physician, although on the whole the report is without serious prejudices.

Time points out that the opposition to the Wagner-Murray-Dingell Bill is principally "the conservative American Medical Association." It also notes that a survey by the Opinion Research Corporation found that only 37 per cent of people favor "a Federal Government plan" for health security. Another survey, made by a different group, found that 68 per cent of people favor a broadened social security law which would

cover payments for a physician, as well as hospital care. These surveys certainly leave the unprejudiced reader with the idea that there is not a tremendous demand by the population for any great modification of the present type of personal medical care. *Time* says that reformers and organized labor are the people who are backing the Wagner Bill. The latter groups claim several things which the thoughtful medical man knows is not true: (1) that the standards of medical care would be raised by the provisions of the Wagner-Murray-Dingell Bill; this is extremely doubtful, and (2) that there are well populated parts of the United States where the needy cannot get, at the present time, adequate medical care. This argument for the Bill is also one based on false premises. A man living in the wilds of Montana, where the population might be five people per square mile, irrespective of his worldly goods, assuredly could not immediately obtain a doctor to repair a ruptured appendix. It is also true that he would not be able to find at once a mechanic to fix his automobile if there was a serious injury to that piece of machinery. The needy have little to do with the arguments for socialized medicine. The needy are people who can and do obtain, even in the smaller communities, the very best medical care given by the same physicians who treat the wealthy and who are hospitalized, where it is true they do not have private rooms, and do have to sleep in a ward. The so-called rebuttal to the physician's claims we think misses the best argument that there may be for a medical insurance act, namely that those persons most likely to suffer from lack of adequate medical attention are those who are not needy but are in the lower income group. If these people do suffer, however, it is largely because of false pride. Practically every physician is willing to make his fees meet the pocketbook of the patient and certainly the cost of hospitalization has been taken care of most satisfactorily by hospital insurance, which is being quite universally bought by people over the entire country.

Two very pointed arguments against this pernicious Bill are not mentioned: (1) that labor would object very strenuously to having a 6 per cent cut in its wages to pay for health insurance, and (2) that the cost of medical service would be immeasurably increased because of the necessity to support untold thousands of lay bureaucrats who, the thinking physician feels, would attempt to control medicine in the United States. Both of these statements are valid. The last one is substantiated by *Time* because it notes in its article that in the survey in which only 37 per cent of those questioned wanted a Government plan, "people tend to say No when confronted by phrases like 'Federal Government'." We have too much Federal Government at the present time and if this Bill should pass we would have a whole lot more.

The last sentence of this article is so obviously incorrect that it hardly needs to be countered. The sentence states that "this spurt in A.M.A. thinking" (development of a satisfactory plan of group medicine) "according to some critical observers brought the organization up to 20 years behind the times." As a matter of fact the organization and its membership has been thinking about, planning for, and has made effective in many areas forms of medical practice which were never heard of 20 years ago.

ATYPICAL PNEUMONIA

The term atypical pneumonia has come to mean a systemic disorder usually associated with lung pathology. The term atypical pneumonia was coined because the disease did not have the typical features of lobar pneumonia. When this term was first used the cases were few and the condition was relatively rare. It had none of the characteristics of lobar pneumonia; it was therefore spoken of as being unusual or atypical. Now that the incidence of the disease far exceeds that of lobar pneumonia of pneumococcic origin, it might well be said that this latter type of pneumonia is atypical and the other type of viral origin is the typical type seen nowadays. Illustrative of the frequency with which this viral pneumonia occurs, are the reports from the

State Board of Health that show at the time this was written there have been reported almost 1400 cases in the State of Louisiana, as contrasted with less than 500 cases of pneumococcic pneumonia.

The cause of viral pneumonia is not known; a variety of viruses have been implicated. At the present time the most likely group of viruses that may be the etiologic agent include the viruses of parrot psittacosis and pigeon psittacasis, ornithosis. There is a close resemblance to the Donovan virus of lymphogranuloma venereum and the virus meningopneumonitis. Influenza A virus has also been incriminated, as well as the cotton rat virus which at the present time seems to be quite popular as a possible etiologic factor. It may be that any of these viruses or many more may have pneumotropic activities which are responsible for the production of the symptoms. Unfortunately the identity of certain viruses constitutes a laboratory problem which cannot be handled except in a few places with very elaborate equipment and specially trained men. Bacterial diseases can be identified by laboratory measures in practically any reasonably well equipped laboratory in the country.

No matter what the etiology might be of this unusual pulmonary condition, there are several clinical features which need to be stressed. In the first place, the incubation period is decidedly variable; it may be from 48 hours to three weeks. The onset is by no means characteristic. In patients with a short incubation period the start of the disease is usually abrupt with a chill or a rigor and a prompt elevation of the fever to 103-105 degrees. In the instance of a long period of incubation the onset is gradual, the presenting symptoms are often those of a cold and tracheobronchitis. The most frequent symptom aside from malaise, which is associated with any infectious process, is cough; this is present in approximately 85 per cent of patients. The sputum is characteristic only in the absence of a large number of bacteria of the coccal type. A goodly number of patients suffer from sore throat and likewise in about half of the patients, particularly at the onset, the headache is often extremely severe, so severe that it may be mistaken for, in a few instances, the head pain of a bacterial meningitis. The physical signs are woefully lacking. It is literally astounding in some of the severe cases to find extensive roentgenologic changes and yet the only physical signs may be subcrepitant rales induced only after coughing. The x-ray is characteristic; it is the one definite finding; the lung fields show involvement in the hilar area extending out towards the periphery, with a tendency when serial x-rays are taken, to show progressive areas of involvement in other places in the lung. The x-ray findings may clear up within a few days after the subsidence of fever or they may persist for weeks after the patient is clinically well.

Laboratory findings are of value from the standpoint of their negativity. The sputum discloses no predominance of any one bacterium, the leukocyte count is normal and the differential formula is unchanged. If the disease is prolonged there may develop a slight leukocytosis, probably indicative of secondary bacterial invasion.

Complications are few. The prognosis is excellent. Even in the most severe camp epidemics the death rate has been less than one-fourth of one per cent.

The treatment again is negative. There is no specific and the sulfonamides have no effect on the course of the disease. As a matter of fact, they are probably contraindicated as of the complications that have been reported many of them have been due to the sulfonamides. Prolonged bed rest is a definite requisite for the final recovery of the patient, as recurrences are quite frequent and may be obviated by rest in bed and prolonged convalesence.

Physicians have been boasting of their conquest of lobar pneumonia. Now there appears a disease which, while rarely fatal, is often incapacitating for many weeks. Certainly medicine is not a static science. If one disease is controlled another one seems to take it place.

ORGANIZATION SECTION

The Executive Committee dedicates this page to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

THE PROFESSION AND THE PUBLIC*

By this time the Wagner-Murray-Dingell Bill should be thoroughly understood by every doctor in the active practice of medicine. Any one who is not familiar with its full import should make every effort to study it, and become fully cognizant of its meaning. It is a Bill that would, without any question of doubt, completely socialize the practice of medicine. It would make every doctor subservient to his ward boss and political leader with all of these inherent dangers. He would have to cater to the ward boss rather than to his patient. It would create a new class of political doctors with all the evils of political practice, which seeks emoluments while avoiding burdens.

No longer would the personal relationship between patient and doctor exist, and the patient would simply become a pawn of the State. No conscientious doctor would want or desire to practice medicine when a third party would intervene to tell him how and what he might do for any patient. What the American people want is the best of medical services at a price that they can afford or for which they can budget. They do not want a minimum of advice and prescription by a government-controlled doctor not of their own choosing but paid by tax money out of their own pay checks. The American public must be shown that government-controlled medicine is, in the long run, the most expensive of medical services.

The history of State medicine in every country that uses it shows that under state control, medicine has deteriorated. The doctors of America can be proud of the record which they have made in the fight against disease; the records speak for themselves. However, some plan must be devised to help the individual meet his medical expenses in the same way that an individual provides for his family after his death, by life insurance; in the same way that an individual prepares for the unlooked-for hospitalization of his family, by insurance; in the same way that an individual insures his home, his automobile, and any of his personal belongings.

Quite a few states have already formed prepayment medical plans and many others are in the process of forming such plans. The Louisiana State Medical Society has a committee appointed to study the plan of prepaid medical services. This is something that we should go into seriously and consider from every angle. And it should be done now.

The individual should have every right to budget his medical services just as he does all other expenses, and we as medical men should make every effort to meet this requirement. A plan must be devised which is satisfactory to both doctor and patient, for I feel confident that the patient would rather have a plan in which his own physician is interested than a plan which is governed and supervised by political bureaucrats. If hospitalization can be made a success, and many other States have plans for prepaid medical services which are also successful, then Louisiana should be able to formulate a successful plan of prepayment for medical services which would also be satisfactory to both patients and doctors.

In this way, and only in this way, can the Wagner-Murray-Dingell Bill be successfully combated. We have been shown the way; now we should act. Let us not be the first to discard the old, nor yet the last to attempt the new.

*The above was a message which appeared in a recent issue of the Orleans Parish Medical Society Bulletin by Dr. Val H. Fuchs President, Louisiana State Medical Society.

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At the last meeting of the House of Delegates a special Committee on Pre-Payment Medical Service was appointed for the purpose of studying and preparing some con-

crete facts for the State Medical Society in regard to establishing in this state a voluntary pre-payment medical insurance. It was generally felt in the House of Delegates that such a plan would supply a definite need for more equitable distribution of medical care and would forestall the necessity of Federal Government taking over the practice of medicine.

This committee recently met in Alexandria where representatives from every district except two attended. There was a liberal discussion of the various plans of pre-payment medical insurance with the idea of finding a suitable one which would be applicable to the State of Louisiana. Unquestionably, this committee will be prepared to bring before the House of Delegates of the State Society some definite constructive suggestions for their proper consideration and deliberation. There are a great many phases which have not yet been completed in relation to this stupendous problem. The chairman and the various members of the committee evidenced by their discussion a tremendous amount of study and research which they have formulated in order to reach some appropriate decision as to what is best for the State of Louisiana. There is a lot of work yet for the committee. As their plans mature into some more definite policies it would be premature to place any particular emphasis on certain conclusions which they have reached concerning this work. This information should be of value to the officers and members of our various parish societies in order that they may give this problem the thought and study which is required before definitely shaping a policy for the entire state.

We advise you to read and become informed of the various plans in force in an attempt to learn the differences between the various forms of pre-payment insurance which are now prevailing in our country. This is essential if we are to decide finally on a plan which will succeed in our State. Nothing is yet sure in this regard, but we should all give serious and conscientious thought to this grave problem which is regarded as essential for extension of medical service to the needy in our state.

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TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR OF MEETINGS

January 2. Eye, Ear, Nose and Throat Staff, 8 p. m.

January 3. Clinico-pathologic Conference, Marine Hospital, 7:30 p. m.
Mercy Hospital Staff, 8 p. m.

January 4. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m.

January 8. Installation Meeting, Orleans Parish Medical Society, Jung Hotel, 7 p. m.

January 10. Touro Infirmary Staff, 8 p. m.
Woman's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.

January 11. New Orleans Hospital Council.

January 15. Hotel Dieu Staff, 8 p. m.

January 16. Charity Hospital Medical Staff, 8 p. m.
Clinico-pathologic Conference, Marine Hospital, 7:30 p. m.

January 17. Charity Hospital Surgical Staff, 8 p. m.

January 18. Clinico-pathologic Conference, Touro Infirmary, 11:15 a. m.

January 19. I. C. R. R. Hospital Staff, 12:30 p. m.

January 22. Scientific Meeting, Orleans Parish Medical Society, 8 p. m.

January 23. Baptist Hospital Staff, 8 p. m.

January 24. French Hospital Staff, 8 p. m.
Catholic Physicians' Guild, 8 p. m

January 25 Clinico-pathologic Conference, Touro Infirmary, 11:45 a. m.
DePaul Sanitarium Staff, 8 p. m.

January 26. L. S. U. Faculty Club, 8 p. m.
New Orleans Hospital Dispensary for Women and Children Staff, 8 p. m.

January 31. Clinico-pathologic Conference, Marine Hospital, 7:30 p. m.

During the month of January the Society will hold two meetings; they are as follows:

JANUARY 8th

Installation Meeting. At this meeting the following officers for 1945 will be installed:

Dr. Daniel J. Murphy, President-Elect.

Dr. Philip H. Jones, Jr., First Vice-President.

Dr. Frank Chetta, Second Vice-President.

Dr. H. Ashton Thomas, Third Vice-President.
Dr. Max M. Green, Secretary.
Dr. Paul G. Lacroix, Treasurer.
Dr. John R. Schenken, Librarian.
Dr. E. L. Leckert, Additional Member to the Board.
Dr. E. J. Richard, Additional Member to the Board.
Dr. A. V. Friedrichs, who was elected President-Elect in 1944, will be installed as President for 1945.

JANUARY 22nd

Scientific and Fourth Quarterly Executive Meeting. The following program will be presented:
Obstetric Analgesia—Dr. E. L. King.
Prenatal Care—Dr. Walter Levy.
Report of Officers and Committees

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NEWS ITEMS

Drs. George Hauser, E. J. Richard, Waldo Treuting and John M. Whitney attended the recent meeting of the American Public Health Association in New York. Drs. Hauser and Treuting presented a paper entitled, "An Outbreak of Food Poison Due to a New Etiological Agent— Salmonella Berta."

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Dr. Milton E. Kirkpatrick discussed, "The History of the Movement of Mental Hygiene" at the November meeting of the American Association of University Women.

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Dr. John M. Whitney was elected vice-chairman of the Public Health Section of the Southern Medican Association at the St. Louis meeting. Dr. Whitney was recently elected first vice-president of the Kiwanis Club.

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Dr. Daniel J. Murphy has been elected to the Board of Directors of the Mid-City Kiwanis Club.

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Dr. W. Robyn Hardy, now overseas, has been promoted from the rank of Major to that of Lieutenant Colonel.

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Dr. Waldemar Metz presented a dry clinic from 9 to 12 o'clock at the New Orleans Charity Hospital on October 18, during the annual meeting of the American Society of Plastic and Reconstructive Surgery, of which he is one of the two local members.

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Dr. E. Carroll Faust lectured November 29 and 30 before the students and staff of the Army Medical School in Washington, D. C. December 7 he addressed the Mississippi Public Health Association in Jackson.

At the November meeting of the Staff of the Southern Baptist Hospital the entire program period was devoted to the death report, as presented by Dr. W. H. Gillentine. Of the 20 deaths, operation was performed in only one, and seven were due to prematurity.

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Dr. Alton Ochsner spoke at a meeting of military surgeons in New York City on paravertebral block for frostbites, and also participated in a panel discussion on neurosurgical problems in the armed forces.

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At the December meeting of the Mercy Hospital Staff, Dr. William H. Roeling presented a case report, and Dr. L. A. Monte spoke on the diagnosis and treatment of respiratory diseases. This meeting being the last of the year, reports of various committees were presented. It has been announced that the management of the Hospital has purchased the site formerly occupied by Straight University on Canal Street for a new hospital, and that building will start as soon after the war as it is possible to obtain material and equipment for a modern, properly equipped structure.

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Dr. Eugene Countiss and Dr. Julius Lane Wilson addressed a meeting of the Southwestern Division of the Alabama Medical Society at Goldsboro, December 7.

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Drs. Joseph A. Danna, James D. Rives, and Isidore Cohn attended the meeting of the Southern Surgical Association in Hot Springs, Virginia, December 5-7. En route they visited Ashford General Hospital in White Sulphur Springs.

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Dr. Edwin L. Zander has been elected to the Board of Directors of the New Orleans Association of Commerce for the 3-year period 1945-47.

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At the annual meeting of the American Society of Tropical Medicine a resolution of thanks was presented to Dr. Joseph S. D'Antoni, Secretary of the Society, for his editorship and management of Tropical Medicine News, the bi-monthly bulletin established by the Society in February, 1944.

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The following physicians participated in the postgraduate review course in pediatrics offered by the Tulane University School of Medicine, December 11-15: Dr. Emile Naef, Dr. Samuel B. Nadler, Dr. Ralph Platou, Dr. Chester Stewart, Dr. B. Bernard Weinstein.

Daniel J. Murphy, M. D.,
Secretary

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

EAST AND WEST FELICIANA BI-PRISH MEDICAL SOCIETY

The Bi-Parish Medical Society met in East Louisiana State Hospital. After an excellent dinner served in the dining room members and guests repaired to the staff room for a business session. Program for the night was dispensed with, same program to be given at our next meeting the first Wednesday of March, 1945. Following officers were elected for 1945: Dr. B. F. Smith, Jackson, President; Dr. C. E. Sturm, Jackson, Vice-President; Dr. E. M. Toler, Clinton, Secretary-Treasurer. Delegates to the State Convention: Dr. E. M. Toler, Clinton; Dr. Glenn J. Smith, Alternate; Dr. E. M. Robards, Jackson, Pro-tem.

E. M. Toler, M. D., Secretary.

BEAUREGARD PARISH MEDICAL SOCIETY

At a recent meeting of the Beauregard Parish Medical Society the following officers were elected for the year 1945: President, Dr. Thos. R. Sartor; Vice-President, Dr. Sam T. Roberts; Secretary-Treasurer, Dr. J. D. Frazar; Delegate, Dr. Luke Marcello; all of DeRidder.

POINTE COUPEE PARISH MEDICAL SOCIETY

The Pointe Coupee Parish Medical Society recently elected the following officers to serve for the year 1945: President, Dr. J. C. Roberts, New Roads; Vice-President, Dr. J. W. Plauche, Morganza; Secretary-Treasurer, Dr. F. F. Rougon, New Roads; Delegate, Dr. J. O. St. Dizier, Walls.

MEETING OF THE COMMITTEE ON PRE-PAYMENT MEDICAL SERVICE

On December 10 the Committee on Pre-Payment Medical Service met in an all day session in Alexandria at the Hotel Bentley. Those in attendance were as follows: Dr. O. B. Owens, Chairman, Alexandria; Dr. Val H. Fuchs, President of the Louisiana State Medical Society, New Orleans; Dr. E. L. Zander, President of the Orleans Parish Medical Society, New Orleans; Dr. H. B. Alsobrook, New Orleans; Dr. W. L. Bendel, Monroe; Dr. H. W. Boggs, Shreveport; Dr. C. M. Horton, Franklin; Dr. P. T. Talbot, Secretary-Treasurer of the State Medical Society.

NEWS ITEMS

A physician is needed in Weeks, Louisiana. In addition to a comfortable income, there is available a house for rent at $28 a month and free office and equipment and lighting.

Dr. Joseph A. Danna, Clinical Professor of Surgery, Dr. Isidore Cohn, Clinical Professor of Surgery and Dr. J. D. Rives, Clinical Professor of Surgery at Louisiana State University School of Medicine attended the meeting of the Southern Surgical Association in Hot Springs, Virginia, December 5, 6 and 7, 1944. En route they were guests of the Army's Ashford General Hospital in White Sulphur Spring, West Virginia. The invitation was extended by Col. Dan C. Elkin who is also a member of the Southern Surgical Association and Col. C. N. Beck, Commanding Officer of the Hospital.

Dr. Roland A. Coulson has been appointed instructor in the Department of Biochemistry, Louisiana State University School of Medicine. He holds an M.S. degree from Louisiana State University and a Ph.D. degree from the University of London. Dr. Coulson has just returned from service with the Royal Air Force in Great Britain, where he did research work for the Division of Nutrition, Air Ministry.

REDUCTION IN THE MEDICAL CORPS OF THE ARMY

A moderate reduction in numbers of Army Medical Corps officers is necessary in order to remain within presently allotted ceilings, the Office of The Surgeon General has announced. The need for Medical Corps Officers in senior grades who are assigned principally to administrative duties is less acute than formerly.

A Board of Officers recently appointed in the Office of the Surgeon General is carefully considering the physical and other qualifications of all Medical Corps officers of the various compo-

nents of the Army and their essentiality to the war effort.

As a result of this Board's study, it is anticipated that a number of separations of the above group will occur in the moderately near future. Regular Medical Corps officers will be accorded retirement privileges under the provisions of Section II, Ar. 605-245, June 17, 1941, and Reserve, National Guard, and AUS Medical Corps officers will be given the opportunity of returning to the practice of medicine in a civilian status by relief from active duty or discharge.

AMERICAN COLLEGE OF SURGEONS

The following doctors from Louisiana have been accepted into Fellowship of the American College of Surgeons in 1944:

Drs. Wallace H. Brown, Shreveport; George M. Haik, New Orleans; William S. Harrell, Jr., Bogalusa; Louis F. Knoepp, Shreveport; Henry Leidenheimer, Jr., New Orleans; Harry D. Morris, New Orleans; James S. Newton, New Orleans; Irving Redler, New Orleans; William F. Thomas, Jr., Lafayette; Richard W. Vincent, New Orleans; John C. Weed, New Orleans.

TOURO INFIRMARY

The regular monthly meeting of the medical staff of Touro Infirmary met on Wednesday, December 13 at 8:00 p. m. The first order of business was a Clinico-Pathological Conference, the clinical discussion being led by Dr. Alton Ochsner. Dr. Alan Leslie then spoke on "Physiological Aspects of Aviation Medicine", and the program was completed by a joint paper by Drs. Arthur Caire, Jr. and B. B. Weinstein who spoke on "Utero-Placental Apoplexy."

CHARITY HOSPITAL

The regular monthly meeting of the Charity Hospital staff was held on December 19 in the auditorium of Charity Hospital. The first paper was presented by Dr. R. C. Lowe on "Hypothyroidism." Dr. E. Phillips then gave a most interesting discussion and case report on "Congenital Cyst of the Lung." The last part of the program was conducted by Dr. H. A. Klein who presented two patients with intractable gastric ulcer. The first was a patient who had active pituitary disease with acromegalic symptoms, and second was a man who had been operated upon with a seventy per cent gastrectomy and who again had a recurrence of the symptoms.

INFECTIOUS DISEASES IN LOUISIANA

The morbidity report of the Louisiana State Department of Health showed that for the week ending November 11 there were very few diseases recorded in numbers greater than 10. These included 23 cases of malaria, 20 of pulmonary tuberculosis, 18 of diphtheria, and 13 each of unclassified pneumonia and scarlet fever. The unusually large number of diphtheria cases reported was not due to an epidemic. There was not a single parish in the state reporting more than two cases. The majority of the malaria cases came from Jefferson Parish from which 12 were reported. It might be noted also that there was one case of poliomyelitis reported this week which came from Rapides. The morbidity statistics took a jump in the week ending November 18. There were listed 43 cases of pulmonary tuberculosis, 35 of mumps, 16 of scarlet fever, 14 of unclassified pneumonia, 13 of diphtheria, and 12 of malaria. No other reportable diseases were reported in numbers greater than 10. Eleven of the malaria cases were reported from military sources. Ascension, Caddo, and Lafayette each had three cases of diphtheria. For the last week in November pulmonary tuberculosis again was first in the number of cases reported with 24 instances, followed by 21 of diphtheria, 15 of scarlet fever, and 14 of malaria. Caddo Parish had five cases of diphtheria and East Baton Rouge Parish three. Again the majority of the malaria cases were reported from military sources. Incientally, this week there were eight cases of typhus fever reported. The week which ended December 2 was the week when the monthly accumulation of venereal disease cases is listed. This included 1,073 cases of gonorrhea, 952 of syphilis, 26 of chancroid, and 12 of lymphopathia venereum. Other diseases reported in numbers greater than 10 include 35 cases of malaria, 30 of influenza, 20 each of pulmonary tuberculosis and diphtheria, 16 of unclassified pneumonia, and 13 of scarlet fever. In this week the majority of the cases of diphtheria came from Sabine Parish with eight reported. Most of the cases of malaria were reported from military sources and from Grant Parish. For the first time in many weeks a case of smallpox was reported, this originating in Red River Parish.

HEALTH IN NEW ORLEANS

The Bureau of the Census, Department of Commerce reported that for the week ending November 18 there were 137 deaths in New Orleans as contrasted with 156 the previous week. These deaths were divided 79 white, 58 colored, and 14 of them were children under one year of age, equally divided between the two races. The next week which terminated November 25 there was a slight increase in the number of deaths in the city due largely to a greater number of white people dying than the previous week. The figures for this week were total deaths 143, white 91, nonwhite 52, and eight infants under one year of age. For the week which closed December 2, the 161 deaths in the City of New Orleans were divided 104 white, 57 colored, and 11 infants. For the

week of December 9 the number of deaths was approximately the same as in the previous week, there being an increase of 4. The actual number of deaths in the white population was the same as in the previous week, but there were 61 deaths in the negro population, and of the total number of deaths 11 of them were in children under one year of age.

KILLED IN SERVICE

Dr. Wilbur L. Edgerton

(1913-1944)

The State Society has been advised by Mrs. Edgerton that her husband, Dr. Wilbur Leroy Edgerton, has been killed in India while serving as a flight surgeon in the United States Air Corps. His death took place on September 17, 1944.

Dr. Edgerton graduated from the Louisiana State University Medical School in 1939 and went to Simmesport to practice. He was active in the parish society and was secretary of the organization prior to entering military service, and had been a member of the State Society since his graduation.

BOOK REVIEWS

Neurology of the Eye, Ear, Nose, and Throat: By E. A. Spiegel, M. D. and I. Somner, M. D. New York, Grune and Stratton. Illus., pp. 667. Price $7.50.

"Neurology of the Eye, Ear, Nose and Throat" stresses the necessity of unification and of a survey permitting the practitioner and research worker to become acquainted with the present state of knowledge in these allied fields.

Originating in postgraduate lectures held within the past twenty-five years in Vienna and the United States the volume is the answer to requests for a summary in book form.

Anatomy, physiology and pathologic disturbances of the nervous mechanisms related to the eye, ear, nose and throat are described in vast and minute detail. Methods of examination of the functional activity of the higher sense organs, and of differential diagnosis and treatment of disorders of their innervation, are thoroughly surveyed and evaluated.

A "restricted" bibliography of 1719 carefully selected references concludes this amazingly complete, detailed and outstanding contribution to the complex field of neurology.

C. P. MAY, M. D.

Manual of Military Neuropsychiatry: Edited by Harry Ceasar, and P. I. Yakovlev. Philadelphia, W. B. Saunders Co., 1944. Illus., pp. 764. Price $6.00.

The present "Manual of Military Neuropsychiatry" is a reference text on topics of neurology and psychiatry prepared especially for medical officers in service remote from libraries and other sources of readily accessible neuropsychiatric information, As far as I have observed little, if anything, for the good of either the civilian or military doctor has been omitted.

No two books, by different authors, can ever be really quite alike and impressed as I am by this one it is very likely to become a medical classic. Never have I worked harder and profited as much from a book as I have while preparing this book review.

Certain topics are presented in so perfect a manner and so practically and clearly that I single them out for special mention. They are: 16. Phychopathic Personalities; 21. Feebleminded and Defective Delinquents of Draft Age; 21. Epilepsy and Paroxysmal Neuropsychiatric Syndromes; 23 Principal Psychoses; 31. Post Traumatic Syndromes; 43. Neuropsychiatric Disorders in the Tropics. But many of the forty-nine topics presented are just as fine.

Your reviewer unqualifiedly recommends this compact volume as an indispensible guide. Between its covers is contained an extraordinarily lucid and thorough summary of neuropsychiatric problems and procedures by specialists eminently qualified to evaluate them.

Such an important book as this one deserves a prominent and handy place in the library of every medically minded person who expects to exert maximum efforts in alleviating the effects or nervous and mental illness.

C. P. MAY, M. D.

Collected Papers of the Mayo Clinic and the Mayo Foundation, Vol. 34: Philadelphia, W. B. Saunders Co., 1943. Illus. pp. 999. Price $11.50.

As usual this is a most interesting and informative volume. There is hardly a section that is not replete with modern up-to-date medical data pretaining to diagnosis and treatment. Space will not permit of any detailed criticism of the book. It can be stated simply that the book in no way has suffered because of the war. It is a worthy successor of its anti-bellum fellows.

I. L. ROBBINS, M. D.

Synopsis of Diseases of the Heart and Arteries: By George R. Herrmann, M. S., M. D., Ph. D., F. A. C. P. 3rd ed. St. Louis, The C. V. Mosby Company, 1944. Pp. 516, illus. Price $5.00.

Dr. Herrmann has introduced in the third edition of this well recognized synopsis on cardiac and arterial disease much new data as well as considerabe revision of the older material. Notable is the accentuation of emphasis on cardiac problems related to wartime medicine. The revision of chapters and the introduction of broader discussions on nervous disorders with cardiac manifestations, changes in blood pressure, and the general systemic types of heart disease, have added greatly to the usefulness of the volume. Synopses are not intended to cover the many details of a subject, and have their advantage in the presentation of the fundamentals. The straighforward adherence of Dr. Herrmann to this principle in this synopsis makes the volume a most excellent source for a quick clear-cut grasp of the many sided aspects of cardiovascular disease.

W. A. Sodeman, M. D.

Functional Disorders of the Foot; Their Diagnosis and Treatment: By Frank C. Dickson, M. D., F. A. C. S. and Rex L. Diveley. Philadelphia, Lippincott & Co. 2nd edition, 1944, 352 pages, 202 illustrations. Price $5.00.

The second edition of this book has been increased in size with the addition of several chapters which are of importaance, especially at this time. One of these, The Disorders of the Foot in Relation to Military Service, is a concise and comprehensive discussion of conditions peculiar to foot conditions seen in the military services. Some of the chapters are a condensation of information found elsewhere in the book. It should prove of value to anyone treating or interested in conditions of the feet as seen in Military Services from Induction to the Rehabilitation Center. Another new chapter which is of especial interest to most of us is Disorders of the Foot in Relation to Industry which emphasizes the importance of a complete health program for moderate size plants as well as for the larger industries. It has many practical points regarding proper foot wear and foot health.

The second edition offers a little more in the way of surgical procedures than the first edition did. As a whole, it furnishes a basic approach to foot disorders and gives practical time-tested solutions to commonly encountered foot conditions. This book is not encyclopedic in scope, but presents the material in a straightforward, simple manner which is easily comprehended. It should take its place along with the first edition, published in 1939, on the shelves of the working library of most physicians

Jack K. Wickstrom, M. D.

Vascular Responses in the Extremities of Man: By David I. Abramson, M. D., F. A. C. P. Chicago, Univ. of Chicago Pr., 1944. Pp. 412. Price $5.00.

The ambitious undertaking which Dr. Abramson's monograph represents is indicated by its title, "Vascular Responses in the Extremities of Man in Health and Disease." This volume of 387 pages is arranged in seven parts to include discussions of the anatomy, physiology and nervous control of the vessels, the qualitative and quantitative procedures employed in the study of vessels and the rate of peripheral blood flow, the vascular responses to various physical and chemical stimuli, the blood flow in abnormal states and in systemic disease, the vascular response in peripheral vascular disease and, finally, the evaluation of methods employed in the treatment of these conditions.

The great scope of this presentation coupled with the small size of the volume have necessarily resulted in condensed and frequently inadequate discussions of important subjects. Only two and one-quarter pages, for instance, are devoted to the discussion of the physical signs and symptoms in the study of the vessels and the rate of peripheral blood flow. Bibliographic reference at the end of each chapter, however, are furnished for any reader desiring to pursue further the subjects discussed. The reviewer was disappointed to note that the author recommended peripheral nerve blocks as a procedure for the removal of vasoconstrictor tonus in the study of vessels in preference to the more direct and, despite the author's statement to the contrary, equally simple procedure of sympathetic ganglion procaine block. The sections devoted to the vascular responses in various functional and organic disease of the vessels are brief in many instances due to the paucity of the information on the underlying abnormal physiology in many of these conditions. The authors whom Dr. Abramson has elected to quote in certain instances are not the originators of the ideas expressed. An example which comes to mind is the reference to a publication appearing in 1930 which pointed out the increased surface temperature occurring in arteriovenous aneurysms. This phenomenon was recorded and well understood by Franz, Matas, and others many years ago. In the index of this volume, it is noted that cross references are frequently inadequate, an example being the absence of any reference under ulcers to the separate entry of post-phlebitic ulcers, or likewise the omission of the term aneurysm but the inclusion of the entry arteriovenous aneurysms. It is believed that many more illustrations should have been included for the purpose of presenting more clearly the technical equipment considered. Moreover, numerous color plates to illustrate the clinical conditions under consideration and drawings to present diagramatically the pathologic physiology of each would have added materially to the value and clarity of this volume.

Despite the above criticisms, it is the reviewer's opinion that Dr. Abramson's monograph represents a valuable contribution to the literature of the subject, since it collects and presents succinctly the important methods and equipment employed in the study of conditions producing disturbances in peripheral blood flow and the evaluation and interpretation of the findings made with these methods and equipment.

In the foreword, Dr. Abramson has stated that his book will have accomplished the purpose for which he intended it "if it serves to inform the reader of the scope and rapid development of the field of normal and abnormal peripheral vascular responses in man." It is the reviewer's opinion that this volume very definitely accomplishes this purpose.

MAJOR R. G. HOLCOMBE, JR., M.C., U.S.A.

A Method of Anatomy: Descriptive and Deductive: By J. C. Boileau Grant, M. C., M. B., Ch. B. Third edition. Baltimore, The Williams and Wilkins Company, 1944. Pp. xxiv + 822, figs. 729. Price $6.00.

Commenting in this Journal on the first edition of Grant's book (1937), the present reviewer characterized *A Method of Anatomy* as follows: "An innovation in the field of anatomical text-books. Less than a third of the bulk of the familiar texts of gross anatomy, with original simplified illustrations and above all differing in the method of presenting subject matter, 'A Method of Anatomy' challenges the traditionally plethoric teaching of anatomical rote . . . Emphasis is given to development, physiological and practical considerations, and the reader is constantly reminded of significant deductions to be drawn from observed structure." This third edition, like the first, was planned by the author to provide "a working instrument designed to make anatomy rational, interesting and of direct application to the problems of medicine and surgery." It can fulfill that aim even better, with improvements in text matter and illustrations suggested by an experience of several years.

HAROLD CUMMINS, PH.D.

Artificial Pneumothorax in Pulmonary Tuberculosis: By T. N. Rafferty, M. D. New York, Grune and Stratton, 1944. Pp. 192. Price $4.00.

This book is the result of the author's effort to bring order out of a great deal of the indecision surrounding the indications and contraindications for artificial pneumothorax. He first considers in a general way the present status of collapse therapy. This is followed by a consideration of the choice of cases and finally the management is considered at rather great length. The place of artificial pneumothorax in its relationship to the broader aspects of collapse therapy is discussed and the possibilities and complications of collapse therapy and especially pneumothorax are well presented by the author. The book should prove of value to those interested in this extremely important phase of phthisotherapy.

I. L. ROBBINS, M. D.

Manual of Urology: By R. M. Le Comte, M. D., F. A. C. S. Baltimore & Wilkins Co., 1944. Pp. 305. Price $4.00.

Dr. R. M. Le Comte has written here an excellent textbook that wastes no words and also does not confuse the reader with the various aspects and diversified opinions on the different urological subjects. It should be of great value to medical students and practitioners who desire a book for their own library which is "to the point." Of outstanding value is his common sense treatment sections. Of course, penicillin as a therapeutic measure is not included yet. Dr. Albright's various solutions in treatment of stones are also not included, perhaps rightly so, because of their still experimental usage. Dr. Le Comte's sections on "Impotence and Sterility in the Male" is particularly good. From the ample bibliography, one can, if interested, go into greater details on any subject he desires. As a whole, it is to be quite highly recommended.

DAVID T. H. SCHNEIDER, M. D.

PUBLICATIONS RECEIVED

The Williams and Wilkins Company, Baltimore: The Woman Asks the Doctor, by Emil Novak, M. D., F. A. C. S.

The Blakiston Company, Philadelphia: Stitt's Diagnosis, Prevention and Treatment of Tropical Diseases, by Richard P. Strong, M. D., Sc.D., D. S. M., C. B., seventh edition, Volumes I and II.

Comstock Publishing Company, Ithaca, New York: Intracranial Arterial Aneurysms, by Walter E. Dandy. The Mosquitoes of North America, by Robert Matheson.

Charles C. Thomas, Publisher, Springfield, Illinois: Endocrinology of Woman, by E. C. Hamblen, B. S., M. D., F. A. C. S.

The Commonwealth Fund, New York: Atlas of the Blood in Children, by Kenneth D. Blackfan, M. D. and Louis K. Diamond, M. D.